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ATLAS OF THE FLORA OF NEW ENGLAND: PAEONIACEAE TO ERICACEAE

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ABSTRACT

Dot maps are provided to depict the distribution at the county level of the taxa of Magnoliophyta: Paeoniaceae to Ericaceae (corresponding to Flora of North America, Vol. 8) growing outside of cultivation in the six New England states of the northeastern United States. The maps treat 147 taxa (species, subspecies, varieties, and hybrids, but not forms) based primarily on specimens in the major herbaria of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, and Connecticut, with most data derived from the holdings of the New England Botanical Club Herbarium (NEBC). Brief synonymy (to account for names used in standard manuals and floras for the area), habitat, chromosome information, and common names are also provided.
KEY WORDS: flora, New England, atlas, distribution, Crassulaceae, Ericaceae, Grossulariaceae, Myrsinaceae, Primulaceae, Saxifragaceae

This article is the seventh in a series (Angelo & Boufford 1996, 1998, 2000, 2007, 2010, 2011a) that will present the distributions of the vascular flora of New England in the form of dot distribution maps at the county level (Figure 1). The atlas is posted on the internet at http://neatlas.org, where it will be updated as new information becomes available.

This project encompasses all vascular plants (lycophytes, pteridophytes and spermatophytes) at the rank of species, subspecies, and variety growing independent of cultivation in the six New England states. Hybrids are also included, but forms and other ranks below the level of variety are not. The dots are based on voucher specimens primarily in New England herbaria (of colleges, universities, botanical gardens, and public museums) representing reproducing populations outside of cultivated habitats. This seventh installment includes the families in Magnoliophyta: Paeoniaceae to Ericaceae corresponding to the families treated in Flora of North America, Vol. 8 (Flora of North America Editorial Committee 2009). Of the 147 taxa treated, 45 are not native to the region. Future accounts will treat the distribution of additional non-monocot angiosperms.

The habitat data are distillations from a variety of sources augmented by our own field observations. An attempt was made to indicate habitat information as it applies to a particular taxon in New England rather than to the entire range of the taxon. Such information is omitted where habitat is not indicated on the specimen label and where we also lack personal knowledge of the plant in New England. Omissions of habitat information are for a few introduced taxa and for all hybrids.

We plan to gather this series of articles, together with additional background material, into a separate volume upon completion of all the installments. It is our hope, in the meantime, that these articles will stimulate additional field work to supplement the distributions portrayed in the maps. The New England Botanical Club herbarium has proven to be the most important resource for this project. We are eager to receive information on voucher specimens in public herbaria documenting range extensions and filling county gaps in distributions. Similarly, because the atlas of the New England flora will be continuously updated as new information becomes available, we are eager to receive notification of published corrections of cytological information and new, documented chromosome counts for taxa in the New England flora.

MATERIALS AND METHODS

Materials and methods are as outlined in Angelo and Boufford (1996) and in a web version (Angelo & Boufford 2011b) and are not repeated here.

TAXONOMY AND FORMAT

The taxonomy and nomenclature adopted for this work essentially follow that of the Flora of North America project, except that families, genera, and species are arranged alphabetically. The families and their circumscription do not necessarily reflect current views on relationships or composition. The Angiosperm Phylogeny Website (Stevens 2001 onwards) should be consulted for a continuously updated treatment of families and their inclusive genera. Named and unnamed hybrid taxa are placed alphabetically at the end of the genus in which they occur. Unnamed hybrids combine the names of the progenitors alphabetically by epithet. Taxa that are not native to New England are indicated by uppercase text. Unpublished names are not used, even if publication is pending.

Chromosome numbers are taken primarily from Flora of North America, Vol. 8 (Flora of North America Editorial Committee 2009) and from Goldblatt and Johnson (1979–).

Synonymy is provided primarily with respect to names accepted in standard manuals covering New England published from 1950 onward, including Fernald (1950), Gleason (1952), Gleason and Cronquist (1991), and Seymour (1982). Synonyms have not been provided where the distribution for the synonymized name does not include New England.

The following list (which includes excluded taxa) will aid readers in finding familiar names that have been transferred to other taxa:

Empetraceae	=>	Ericaceae
Monotropaceae	=>	Ericaceae
Primulaceae (in part)	=>	Myrsinaceae
Primulaceae (in part)	=>	Theophrastaceae
Pyrolaceae	=>	Ericaceae
Saxifragaceae (in part)	=>	Grossulariaceae
Saxifragaceae (in part)	=>	Penthoraceae
Arctostaphylos (in part)	=>	*Arctous*
Cassandra	=>	*Chamaedaphne*
Cassiope (in part)	=>	*Harrimanella*
Chiogenes	=>	*Gaultheria*
Glaux	=>	*Lysimachia*
Ledum	=>	*Rhododendron*
Leucothoë (in part)	=>	*Eubotrys*
Loiseleuria	=>	*Kalmia*
Naumbergia	=>	*Lysimachia*
Oxycoccus	=>	*Vaccinium*
Pyrola (in part)	=>	*Orthilia*
Saxifraga (in part)	=>	*Micranthes*
Sedum (in part)	=>	*Hylotelephium*
Sedum (in part)	=>	*Phedimus*
Sedum (in part)	=>	*Rhodiola*
Tillaea	=>	*Crassula*

The following species have been reported from our area but are excluded for the reasons noted:

Agarista populifolia (Lamarck) Judd [no specimen located; reported from Rhode Island]

Anagallis minima (Linnaeus) E.H.L. Krause (*Centunculus pumilis* (Swartz) Kuntze) [collected in Worcester Co., Massachusetts; no specimens yet accessioned in herbaria that are the basis for this atlas]

Lysimachia quadriflora Sims [no specimen located; reported from Massachusetts with vouchers at MIN, but vouchers not located there]

Pieris floribunda (Pursh) Bentham & Hooker f. [no voucher for wild occurrence found; reported from Vermont]

Primula wilsonii Dunn var. *anisodora* (Balfour f. & Forrest) A. J. Richards (*P. anisodora* Balfour f. & Forrest) [no specimen located; reported from Berkshire Co., Massachusetts; apparently now identified as *Primula japonica* A. Gray]

Rhododendron columbianum (Piper) Harmaja [a single 1871 specimen from Mt. Washington, NH recently annotated as this species, and far from its known range, is excluded until its status in New England is better understood.]

Rhododendron tomentosum Harmaja [a single 1947 specimen from a bog in Carroll Co., NH recently annotated as this species, and distant from its known range, is excluded until its status in New England is better understood.]

Rhododendron vaseyi A. Gray [no voucher for wild occurrence found; reported from Massachusetts]

Saxifraga hyperborea R. Brown [no specimen located; reported from Mount Washington, New Hampshire]

Styrax japonicus Siebold & Zuccarini [no specimen located; reported from Connecticut (Flora of North America Editorial Committee 2009)]

ANGIOSPERMAE (MAGNOLIOPHYTA) - ANGIOSPERMS

CLETHRACEAE

Clethra alnifolia Linnaeus—Sweet Pepperbush (Figure 2). $2n = 16, 32$. Swamps, swampy thickets, damp, sandy woods.

CRASSULACEAE

Crassula aquatica (Linnaeus) Schönland—Common Pigmyweed (Figure 2). $2n = 42$ (Iceland). Tidal mud flats, coastal marshes, pond shores, river margins, vernal pools. [*C. saginoides* (Maximowicz) M. Bywater & Wickens; *Tillaea aquatica* Linnaeus]

HYLOTELEPHIUM ERYTHROSTICTUM (Miquel) H. Ohba—Garden Stonecrop (Figure 2). $2n = 48$. Waste places, disturbed ground, roadsides, pond shores. From eastern Asia, Russia. [*SEDUM ALBOROSEUM* Baker; *S. ERYTHROSTICTUM* Miquel; *S. SPECTABILE* Boreau – misapplied]

HYLOTELEPHIUM SPECTABILE (Boreau) H. Ohba—Butterfly Stonecrop (Figure 2). $2n = 50, 51$. Dry, roadsides. From eastern Asia. [*SEDUM SPECTABILE* Boreau]

HYLOTELEPHIUM TELEPHIUM (Linnaeus) H. Ohba—Witches' Moneybags (Figure 2). 2*n* = 36. Roadsides, waste places, old fields. From northern Eurasia. [*SEDUM TELEPHIUM* Linnaeus; *S. PURPUREUM* (Linnaeus) Schultes]

PHEDIMUS AIZOON (Linnaeus) 't Hart—(Figure 2). 2*n* = 30-32, 56, ca. 64, 66, 71-124. Open, rocky places. From eastern and northern Asia. [*SEDUM AIZOON* Linnaeus]

PHEDIMUS SPURIUS (M. Bieberstein) 't Hart—Caucasian Stonecrop (Figure 2). 2*n* = 28, 42 Rocky or sandy roadsides, waste places, old fields. [*SEDUM SPURIUM* M. Bieberstein; *S. STOLONIFERUM* – misapplied]

Rhodiola rosea Linnaeus—Roseroot (Figure 2). 2*n* = 22. Sea cliffs, rocky ledges. [*Sedum rosea* (Linnaeus) Scopoli]

SEDUM ACRE Linnaeus—Mossy Stonecrop (Figure 2). 2*n* = 40, 60, 80, 100, 120. Rock outcrops, rock walls, dry, open places. From Europe and Greenland.

SEDUM ALBUM Linnaeus—White Stonecrop (Figure 3). 2*n* = 34, 51, 68, 85, 102, 136. Rocky soil. From Europe.

SEDUM HISPANICUM Linnaeus—Spanish Stonecrop (Figure 3). 2*n* = 40. Roadsides, rocky fields. From Eurasia.

SEDUM OCHROLEUCUM Chaix—(Figure 3). 2*n* = 34, 68, 102. Roadsides, rocky fields, waste places. From Europe. [*S. ANOPETALUM* de Candolle]

SEDUM RUPESTRE Linnaeus—Jenny's Stonecrop (Figure 3). 2*n* = 56, 88, 112, 120. Roadsides, waste places. From Europe. [*S. REFLEXUM* Linnaeus]

SEDUM SARMENTOSUM Bunge—Stringy Stonecrop (Figure 3). 2*n* = ca. 72. Roadsides, waste places. From China.

SEDUM SEXANGULARE Linnaeus—Tasteless Stonecrop (Figure 3). 2*n* = 74, 111, 148, 185. Roadsides, waste places. From Europe.

SEDUM TERNATUM Michaux—Wild Stonecrop (Figure 3). 2*n* = 32. Damp roadsides. From farther south or west.

SEMPERVIVUM TECTORUM Linnaeus—Hens-and-chickens (Figure 3). 2*n* = 36, 40, 72. Rocky outcrops, ledges, stone walls, other rocky sites. From Europe.

DIAPENSIACEAE

Diapensia lapponica Linnaeus—Diapensia (Figure 3). 2*n* = 12. Bare, rocky alpine summits or other open, rocky sites at high altitudes.

GALAX URCEOLATA (Poiret) Brummitt—Beetleweed (Figure 4). 2*n* = 6, 12. Steep slopes in shade of trees, oak forests. From farther south and west. [*G. APHYLLA* Linnaeus – misapplied]

EBENACEAE

Diospyros virginiana Linnaeus—Persimmon (Figure 4). 2*n* = 60, 90. Dry woods, old fields.

ERICACEAE

Andromeda polifolia Linnaeus var. *latifolia* Aiton—Bog Rosemary (Figure 4). $2n = 48$. *Sphagnum* bogs. [*A. polifolia* var. *glaucophylla* (Link) de Candolle; *A. glaucophylla* Link]

Arctostaphylos uva-ursi (Linnaeus) Sprengel—Common Bearberry (Figure 4). $2n = 26, 52$. Dry, open, sandy or rocky soils. [*A. uva-ursi* var. *coactilis* Fernald & J. F. Macbride]

Arctous alpina (Linnaeus) Niedenzu—Alpine Bearberry (Figure 4). $2n = 26, 28$. Alpine areas. [*Arctostaphylos alpina* (Linnaeus) Sprengel]

CALLUNA VULGARIS (Linnaeus) Hull—Heather (Figure 4). $2n = 16$. Dry fields, roadsides, damp, sandy sites. From Eurasia.

Chamaedaphne calyculata (Linnaeus) Moench—Leatherleaf (Figure 4). $2n = 22$. Peaty soil of bogs, swamps, pond margins, barrens and swales. [*C. calyculata* var. *angustifolia* (Aiton) Rehder; *C. calyculata* var. *latifolia* (Aiton) Fernald; *Cassandra calyculata* (Linnaeus) D. Don var. *angustifolia* (Aiton) A. Gray; *C. calyculata* var. *latifolia* (Aiton) F. Seymour]

Chimaphila maculata (Linnaeus) Pursh—Spotted Wintergreen (Figure 4). $2n = 26$. Dry woods.

Chimaphila umbellata (Linnaeus) W. P. C. Barton subsp. *umbellata*—Pipsissewa (Figure 4). $2n = 26$. Dry woods. [*C. umbellata* var. *cisatlantica* S. F. Blake]

Corema conradii (Torrey) Torrey—Broom-crowberry (Figure 5). $2n = 26$. Coastal, sandy or rocky soils, pine barrens, exposed, rocky ledges.

Empetrum atropurpureum Fernald & Wiegand—Purple Crowberry (Figure 5). $2n = 52$. Exposed mountain slopes near treeline. [*E. eamesii* Fernald & Wiegand subsp. *atropurpureum* (Fernald & Wiegand) D. Löve; *C. rubrum* Vahl *ex* Willdenow var. *atropurpureum* (Fernald & Wiegand) R. D. Good]

Empetrum nigrum Linnaeus—Black Crowberry (Figure 5). $2n = 26, 39, 52$. Alpine areas.

Epigaea repens Linnaeus—Trailing Arbutus (Figure 5). $2n = 24$. Woods, clearings, in sandy, peaty or rocky soil. [*E. repens* var. *glabrifolia* Fernald]

ERICA CINEREA Linnaeus—Bell Heather (Figure 5). $2n = 24$. Moors, open woods, roadsides. From Europe.

ERICA TETRALIX Linnaeus—Cross-leaved Heath (Figure 5). $2n = 24$. Dry, sandy fields, peaty clearings, roadsides. From Europe.

ERICA VAGANS Linnaeus—Cornish Heath (Figure 5). $2n = 24$. Open, sandy, pine woods. From Europe.

Eubotrys racemosa (Linnaeus) Nuttall—Swamp Sweetbells (Figure 5). $2n = 22$. Swamps, moist thickets, margins of bogs, ponds, and rivers. [*Leucothoë racemosa* (Linnaeus) A. Gray; *Leucothoë racemosa* var. *projecta* Fernald]

Gaultheria hispidula (Linnaeus) Muhlenberg *ex* Bigelow—Creeping Snowberry (Figure 5). $2n = 22$. *Sphagnum* bogs, mossy coniferous woods and swamps, often on mossy or rotting logs. [*Chiogenes hispidula* (Linnaeus) Torrey & A. Gray]

Gaultheria procumbens Linnaeus—Checkerberry (Figure 6). $2n = 44, 88$. Dry, acidic woods and clearings.

Gaylussacia baccata (Wangenheim) K. Koch—Black Huckleberry (Figure 6). $2n = 24$. Dry, open woods, thickets, pastures, ledges.

Gaylussacia bigeloviana (Fernald) Sorrie & Weakley—Bog Huckleberry (Figure 6). $2n = 24$. *Sphagnum* bogs, *Sphagnum* or *Chamaecyparis* swamps. [*G. dumosa* (Andrews) Torrey & A. Gray var. *bigeloviana* Fernald]

Gaylussacia frondosa (Linnaeus) Torrey & A. Gray—Dangleberry (Figure 6). $2n = 24$. Dry, woods, thickets.

Harrimanella hypnoides (Linnaeus) Colville—Moss-plant (Figure 6). $2n = 32, 48$. Mossy alpine or subalpine areas. [*Cassiope hypnoides* Linnaeus) D. Don]

Kalmia angustifolia Linnaeus var. *angustifolia*—Sheep Laurel (Figure 6). $2n = 24$. Wet or dry, acidic, open soil, *Sphagnum* bogs, rock ledges.

Kalmia latifolia Linnaeus—Mountain Laurel (Figure 6). $2n = 24$. Acidic, rocky or sandy, deciduous woods, thickets.

Kalmia polifolia Wangenheim—Bog Laurel (Figure 6). $2n = 48$. *Sphagnum* bogs, exposed, rocky areas at high elevations.

Kalmia procumbens (Linnaeus) Gift & Kron—Alpine Azalea (Figure 6). $2n = 24$. Alpine areas. [*Loiseleuria procumbens* (Linnaeus) Desvaux]

LEUCOTHOË AXILLARIS (Lamarck) D. Don—Coastal Dog-hobble (Figure 7). Swamps. $2n = 22$. From farther south.

LEUCOTHOË FONTANESIANA (Steudel) Sleumer—Mountain Dog-hobble (Figure 7). $2n = 22$. Sandy, pine woods. From farther south.

Lyonia ligustrina (Linnaeus) de Candolle var. *ligustrina*—Maleberry (Figure 7). $2n = 24$. Swamps, moist thickets, stream and pond margins.

Lyonia mariana (Linnaeus) D. Don—Staggerbush (Figure 7). $2n = 24$. Open, acidic, pine or oak woods.

Moneses uniflora (Linnaeus) A. Gray—Wood-nymph (Figure 7). $2n = 22, 24, 26, 32$. Dry, mossy, rich or rocky woods.

Monotropa hypopitys Linnaeus—Pinesap (Figure 7). $2n = 48$. Leaf mold in woods.

Monotropa uniflora Linnaeus—Indian-pipe (Figure 7). $2n = 32, 48$. Leaf mold in woods.

Orthilia secunda (Linnaeus) House—One-sided Pyrola (Figure 7). 2*n* = 38. Rich woods. [*Pyrola secunda* Linnaeus; *P. secunda* var. *obtusata* Turczaninow]

OXYDENDRON ARBOREUM (Linnaeus) de Candolle—Sourwood (Figure 7). 2*n* = 24. Woods. From farther south and west

Phyllodoce caerulea (Linnaeus) Babington—Mountain-heath (Figure 8). 2*n* = 24. Alpine rocks and peat.

Pterospora andromeda Nuttall—Pinedrops (Figure 8). 2*n* = 16, 48. Chiefly humus in pine woods, often in basic soil.

Pyrola americana Sweet—Round-leaved Pyrola (Figure 8). 2*n* = 46. Woods. [*P. rotundifolia* Linnaeus var. *americana* (Sweet) Fernald]

Pyrola asarifolia Michaux subsp. *asarifolia*—Pink Pyrola (Figure 8). 2*n* = 46. Rich woods, chiefly calcareous soil. [*P. asarifolia* var. *purpurea* (Bunge) Fernald]

Pyrola chlorantha Swartz—Green Pyrola (Figure 8). 2*n* = 46. Dry woods. [*P. virens* Schweigger var. *virens*; *P. virens* var. *convoluta* (W. P. C. Barton) Fernald]

Pyrola elliptica Nuttall—Shinleaf (Figure 8). 2*n* = 46. Dry woods.

Pyrola minor Linnaeus—Snowline Pyrola (Figure 8). 2*n* = 46. Cold, damp, coniferous or boreal woods.

RHODODENDRON CALENDULACEUM (Michaux) Torrey—Flame Azalea (Figure 8). 2*n* = 52. Roadsides, woods. From farther south and west.

Rhododendron canadense (Linnaeus) Torrey—Rhodora (Figure 8). 2*n* = 52. Bogs, swamps, damp thickets, acid barrens, open, rocky summits and slopes.

RHODODENDRON CATAWBIENSE Michaux—Mountain Rosebay (Figure 9). 2*n* = 26. Low or wet woods. From farther south.

Rhododendron groenlandicum (Oeder) Kron & Judd—Labrador Tea (Figure 9). 2*n* = 26. Peaty soils, especially *Sphagnum* bogs and swamps. [*Ledum groenlandicum* Oeder]

RHODODENDRON JAPONICUM (A. Gray) Suringar—Japanese Azalea (Figure 9). 2*n* = 26. Swampy woods. From Japan.

Rhododendron lapponicum (Linnaeus) Wahlenberg—Lapland Rosebay (Figure 9). 2*n* = 26, 52. Alpine barrens.

Rhododendron maximum Linnaeus—Rosebay (Figure 9). 2*n* = 26. Damp woods, swamp margins.

RHODODENDRON MINUS Michaux var. *MINUS*—Piedmont Rhododendron (Figure 9). 2*n* = 26. Woods. From farther south. [*R. CAROLINIANUM* Rehder]

Rhododendron periclymenoides (Michaux) Shinners—Pinxter-flower (Figure 9). 2*n* = 26. Bogs, swamps, wet woods, thickets. [*R. nudiflorum* (Linnaeus) Torrey – misapplied]

Rhododendron prinophyllum (Small) Millais—Roseshell Azalea (Figure 9). 2*n* = 26. Damp thickets, banks of streams, wet or dry, rocky woods. [*R. roseum* (Loiseleur) Rehder – misapplied]

Rhododendron viscosum (Linnaeus) Torrey—Swamp Azalea (Figure 9). 2*n* = 26. Swampy thickets, shores, damp clearings.

Vaccinium angustifolium Aiton—Early Lowbush Blueberry (Figure 10). 2*n* = 48. Openings, wood borders, old pastures, dry, open barrens, peats, and rocks. [*V. angustifolium* var. *hypolasium* Fernald; *V. angustifolium* var. *laevifolium* House; *V. angustifolium* var. *nigrum* (Alph. Wood) Dole; *V. brittonii* Porter *ex* E. P. Bicknell; *V. lamarckii* Camp]

Vaccinium boreale I. V. Hall & Aalders—Northern Blueberry (Figure 10). 2*n* = 24. Alpine heaths and meadows, open, rocky uplands.

Vaccinium caespitosum Michaux—Dwarf Bilberry (Figure 10). 2*n* = 24. Alpine and subalpine areas, but also rocky shores at lower elevations.

Vaccinium corymbosum Linnaeus—Highbush Blueberry (Figure 10). 2*n* = 24, 48, 72. Swamps, bogs, shores, low woods, dry uplands. [*V. corymbosum* var. *albiflorum* (Hooker) Fernald; *V. corymbosum* var. *glabrum* A. Gray; *V. caesariense* Mackenzie; NOTE; Our treatment differs from *Flora of North America*, *Volume 8* (Flora of North America Editorial Committee 2009) in that we treat *V. fuscatum* Aiton separately, based on the judgment of some botanists (*e.g.*, Uttal 1987; Ward 1974) and one of us (Boufford).]

Vaccinium fuscatum Aiton—Black Highbush Blueberry (Figure 10). 2*n* = ? Swamps, bogs, low woods. [*V. atrococcum* (A. Gray) A. Heller; See note under preceding taxon.]

Vaccinium macrocarpon Aiton—Large Cranberry (Figure 10). 2*n* = 24. Bogs, swamps, wet shores. [*Oxycoccus macrocarpus* (Aiton) Persoon]

Vaccinium myrtilloides Michaux—Velvetleaf Blueberry (Figure 10). 2*n* = 24. Margins of woods, thin woods, bogs, clearings.

Vaccinium oxycoccus Linnaeus—Small Cranberry (Figure 10). 2*n* = 24, 48, 72. *Sphagnum* bogs. [*V. oxycoccus* var. *ovalifolium* Michaux; *Oxycoccus palustris* Persoon var. *palustris; O. palustris* var. *ovalifolius* (Michaux) F. Seymour]

Vaccinium pallidum Aiton—Late Lowbush Blueberry (Figure 10). 2*n* = 24, 48. Dry fields, dry, open woods, clearings. [*V. vacillans* Kalm *ex* Torrey var. *vacillans*; *V. vacillans* var. *crinitum* Fernald]

Vaccinium stamineum Linnaeus—Deerberry (Figure 11). 2*n* = 24. Dry, open woods, thickets, clearings.

Vaccinium uliginosum Linnaeus—Alpine Bilberry (Figure 11). 2*n* = 24, 48, 72. Rocky or peaty barrens, upper slopes of mountains, alpine thickets. [*V. uliginosum* var. *alpinum* Bigelow]

Vaccinium vitis-idaea Linnaeus—Mountain Cranberry (Figure 11). 2*n* = 24. Rocky or dry, peaty soil, chiefly in exposed habitats at higher altitudes. [*V. vitis-idaea* var. *minus* Loddiges, G. Loddiges, & W. Loddiges]

—*Vaccinium* hybrids—

Vaccinium angustifolium Aiton × *V. myrtilloides* Michaux—(Figure 11).

Vaccinium angustifolium Aiton × *V. uliginosum* Linnaeus—(Figure 11).

Vaccinium × *atlanticum* E. P. Bicknell (*pro sp.*)—(Figure 11). [*V. angustifolium* Aiton × *V. corymbosum* Linnaeus]

Vaccinium boreale I. V. Hall & Aalders × *V. myrtilloides* Michaux—(Figure 11).

Vaccinium caespitosum Michaux × *V. myrtilloides* Michaux—(Figure 11).

Vaccinium corymbosum Linnaeus × *V. fuscatum* Aiton—(Figure 11).

Vaccinium corymbosum Linnaeus × *V. myrtilloides* Michaux—(Figure 12).

Vaccinium corymbosum Linnaeus × *V. pallidum* Aiton—(Figure 12).

Vaccinium fuscatum Aiton × *V. pallidum* Aiton—(Figure 12).

GROSSULARIACEAE

Ribes americanum Miller—Wild Black Currant (Figure 12). $2n = 16$. Rich, wet thickets and slopes.

RIBES AUREUM Pursh var. *VILLOSUM* de Candolle—Buffalo Currant (Figure 12). $2n = 16$. Old house sites, roadsides. From farther west. [*R. ODORATUMS* H. L. Wendland]

Ribes cynosbati Linnaeus—Prickly Gooseberry (Figure 12). $2n = 16$. Rich, open, usually moist, woods

Ribes glandulosum Grauer—Skunk Currant (Figure 12). $2n = 16$. Wet woods and clearings.

Ribes hirtellum Michaux—Smooth Gooseberry (Figure 12). $2n = 16$. Rocky woods, swamps. [*R. hirtellum* var. *calcicola* (Fernald) Fernald; *R. hirtellum* var. *saxosum* (Hooker) Fernald]

Ribes lacustre (Persoon) Poiret—Bristly Black Currant (Figure 12). $2n = 16$. Cold woods and swamps.

RIBES MISSOURIENSE Nuttall—Missouri Gooseberry (Figure 13). $2n = 16$. Roadsides. From farther west.

RIBES NIGRUM Linnaeus—Garden Black Currant (Figure 13). $2n = 16$. Thickets, old house sites. From Eurasia.

Ribes rotundifolium Michaux—Appalachian Gooseberry (Figure 13). $2n = ?$ Open rocky places and thickets.

RIBES RUBRUM Linnaeus—Red Garden Currant (Figure 13). $2n = 16$. Old house sites, thickets, riverbanks, open woods, roadsides. From Europe. [*R. sativum* (Reichenbach) Syme]

Ribes triste Pallas—Wild Red Currant (Figure 13). $2n = 16$. Swampy woods, subalpine ravines.

RIBES UVA-CRISPA Linnaeus—European Gooseberry (Figure 13). 2*n* = 16. Fields, roadsides, thickets, woods. From Europe and northern Africa. [*R.GROSSULARIA* Linnaeus]

MYRSINACEAE

ANAGALLIS ARVENSIS Linnaeus—Scarlet Pimpernel (Figure 13). 2*n* = 40. Dry, sandy, waste fields. From Eurasia. [*A. ARVENSIS* var. *CAERULEA* (Linnaeus) Gouan]

Lysimachia ciliata Linnaeus—Fringed Loosestrife (Figure 13). 2*n* = 34, 92, 96, 100, 108, 112. Moist thickets, rich woods and shores, roadsides. [*Steironema ciliatum* (Linnaeus) Baudo]

LYSIMACHIA CLETHROIDES Duby—Gooseneck Loosestrife (Figure 13). 2*n* = 24. Moist meadows, woodland margins, open thickets. From eastern Asia.

Lysimachia hybrida Michaux—Lowland Loosestrife (Figure 14). 2*n* = 34. Swamps, shores.

Lysimachia maritima (Linnaeus) Galasso, Banfi & Soldano—Sea Milkwort (Figure 14). 2*n* = 30, 60. Saline or brackish shores, salt marshes. [*Glaux maritima* Linnaeus var. *maritima*; *G. maritima* var. *obtusifolia* Fernald]

LYSIMACHIA NUMMULARIA Linnaeus—Moneywort (Figure 14). 2*n* = 30, 32, 43 (Europe). Damp roadsides, wet meadows, shores. From Eurasia.

LYSIMACHIA PUNCTATA Linnaeus—Garden Loosestrife (Figure 14). 2*n* = 30. Roadsides, old house sites, waste ground, old fields. From Europe.

Lysimachia quadrifolia Linnaeus—Whorled Loosestrife (Figure 14). 2*n* = 84. Open woods, clearings, roadsides, thickets.

Lysimachia terrestris (Linnaeus) Britton, Sterns & Poggenberg—Swamp Candles (Figure 14). 2*n* = 84. Swamps, shores, low, wet ground, roadside ditches. [*L. terrestris* var. *ovata* (E. L. Rand & Redfield) Fernald]

Lysimachia thyrsiflora Linnaeus—Tufted Loosestrife (Figure 14). 2*n* = 40, 42, 54. Bogs, cold swamps, marshes. [*Naumburgia thyrsiflora* (Linnaeus) Reichenbach]

LYSIMACHIA VULGARIS Linnaeus—Garden Loosestrife (Figure 14). 2*n* = 28, 42, 56, 84 (Europe). Wet roadsides, swampy thickets, waste places, old house sites. From coastal Europe.

—*Lysimachia* hybrids—

Lysimachia × *commixta* Fernald—(Figure 14). [*L. terrestris* (Linnaeus) Britton, Sterns & Poggenberg × *L. thyrsiflora* Linnaeus]

Lysimachia × *producta* Fernald (*pro sp.*)—(Figure 15). Bogs, swamps, open, moist woods, damp thickets, shores. [*L. quadrifolia* Linnaeus × *L.. terrestris* (Linnaeus) Britton, Sterns & Poggenberg]

Trientalis borealis Rafinesque—Starflower (Figure 15). 2*n* = 96. Woods, usually dry.

PAEONIACEAE

PAEONIA LACTIFLORA Pallas—Chinese Peony (Figure 15). $2n = 10$. Waste places, old house sites. From eastern Asia.

PAEONIA OFFICINALIS Linnaeus—Garden Peony (Figure 15). $2n = 20$. Old fields and orchards. From Europe.

PENTHORACEAE

Penthorum sedoides Linnaeus—Ditch-stonecrop (Figure 15). $2n = 18$. Wet, low, open ground, shores, marshes, streambanks.

PRIMULACEAE

ANDROSACE OCCIDENTALIS Pursh—Western Rock-jasmine (Figure 15). $2n = 20$. Waste places. From farther west.

Hottonia inflata Elliott—American Featherfoil (Figure 15). $2n = 22$. Muddy ponds, pools, swamps, backwaters of streams.

PRIMULA JAPONICA A. Gray—Japanese Primrose (Figure 15). $2n = 44$. Wet woods. From Japan. [Including the various cultivars to which this name is applied.]

Primula laurentiana Fernald—Bird's-eye Primrose (Figure 15). $2n = 72$. Ledges, meadows, shores, chiefly calcareous.

Primula mistassinica Michaux—Dwarf Canadian Primrose (Figure 16). $2n = 18$. Calcareous cliffs, shores, and meadows.

PRIMULA VERIS Linnaeus—Cowslip (Figure 16). $2n = 22$ (Europe). Shaded slopes, often in calcareous soil. From Europe. [*P. OFFICINALIS* (Linnaeus) Hill]

SARRACENIACEAE

SARRACENIA FLAVA Linnaeus—Trumpets (Figure 16). $2n = 26$. Floating *Sphagnum* mats. From farther south.

Sarracenia purpurea Linnaeus subsp. *purpurea*—Common Pitcher-plant (Figure 16). $2n = 26$. Peaty soil of bogs, swamps and pond margins.

SAXIFRAGACEAE

ASTILBE JAPONICA (C. Morren & Decaisne) A. Gray—False Spiraea (Figure 16). $2n = 36$. Waste places, roadsides. From Japan.

Chrysosplenium americanum Schweinitz *ex* Hooker—American Golden Saxifrage (Figure 16). $2n = 18, 24$. Springs, swampy woods, cold, wet places.

Heuchera americana Linnaeus var. *americana*—Rock-geranium (Figure 16). $2n = 14$. Rich, wet woods.

Micranthes foliolosa (R. Brown) Gornall—Leafy Saxifrage (Figure 16). 2*n* = 56. Mossy, alpine rocks. [*Saxifraga stellaris* Linnaeus var. *comosa* Retzius]

Micranthes pensylvanica (Linnaeus) Haworth—Swamp Saxifrage (Figure 16). 2*n* = 56, 84, 112. Swamps, wet meadows, boggy thickets. [*Saxifraga pensylvanica* Linnaeus var. *pensylvanica*; *S. pensylvanica* var. *purpuripetala* (A. M. Johnson) Bush]

Micranthes virginiensis (Michaux) Small—Early Saxifrage (Figure 17). 2*n* = 20 (+ 0-6 supernumeraries), 38. Open rocky woods, rock outcrops, ledges, rocky hillsides. [*Saxifraga virginiensis* Michaux]

Mitella diphylla Linnaeus—Fairy-cup (Figure 17). 2*n* = 14. Rich woods.

Mitella nuda Linnaeus—Naked Miterwort (Figure 17). 2*n* = 14, 28. Wet woods, swamps, often in moss. [*M. prostrata* Michaux]

Saxifraga aizoides Linnaeus—Yellow Mountain Saxifrage (Figure 17). 2*n* = 26. Calcareous cliffs.

Saxifraga cernua Linnaeus—Nodding Saxifrage (Figure 17). 2*n* = 24, 36, 48, 52, 56, 60, 70, 72. Wet ledges at high altitude.

Saxifraga oppositifolia Linnaeus subsp. *oppositifolia*—Purple Mountain Saxifrage (Figure 17). 2*n* = 26, 39, 48, 52. Calcareous cliffs.

Saxifraga paniculata Miller—White Mountain Saxifrage (Figure 17). 2*n* = 28. Rocky ledges, often calcareous. [*S. aizoön* Jacquin var. *neogaea* Butters]

Saxifraga rivularis Linnaeus subsp. *rivularis*—Alpine Brook Saxifrage (Figure 17). 2*n* = 52. Wet, mossy, alpine areas.

Tiarella cordifolia Linnaeus—Foamflower (Figure 17). 2*n* = 14. Rich, moist, deciduous woods.

STYRACACEAE

HALESIA CAROLINA Linnaeus—Carolina Silverbell (Figure 18). 2*n* = 24. Moist, deciduous woods, roadsides. From farther south and west. [*H. tetraptera* J. Ellis]

SYMPLOCACEAE

SYMPLOCOS PANICULATA Miquel—Sapphire-berry (Figure 18). 2*n* = 22. Swamp margins. From Asia.

THEOPHRASTACEAE

Samolus parviflorus Rafinesque—Seaside Brookweed (Figure 18). 2*n* = 26. Tidal shores, wet places. [*S. floribundus* Kunth]

ACKNOWLEDGMENTS

We thank the curators and directors of the herbaria of the New England Botanical Club, the Harvard University Herbaria, the University of Massachusetts, the University of Vermont, and the

University of Connecticut for allowing access to their collections. For the University of Maine herbarium we used their exceptional online database of Maine specimens. We are grateful also to Karen Searcy for facilitating access to the herbarium and to the notebooks of Harry E. Ahles at the University of Massachusetts (Amherst) and for kindly answering requests for information after our visit. James Hinds also generously checked information on voucher specimens at the University of Maine (Orono). The following persons also checked certain records for us at their respective institutions: Janet Sullivan, Walter Judd, and Anita F. Cholewa. In particular we thank the following individuals for repeated checking of specimens at their institution: Robert Capers of the University of Connecticut and Lisa I. Palmer of Dartmouth College.

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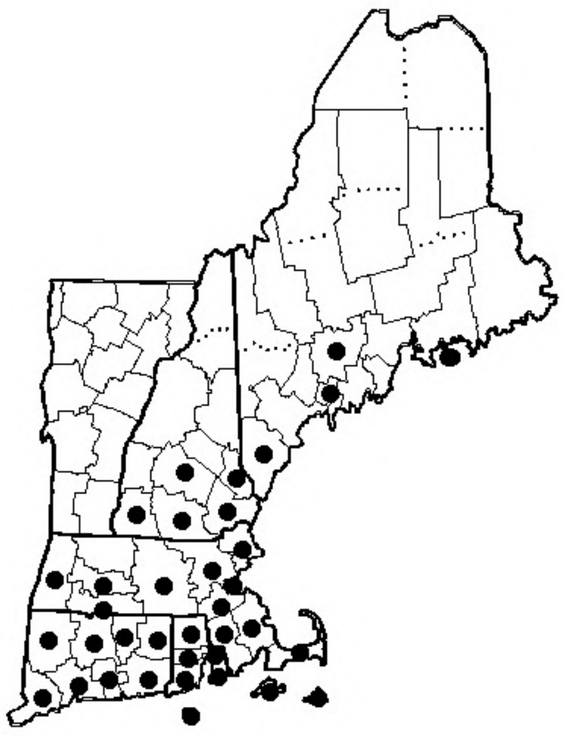
Figure 1. Key map for counties of the New England states (and Mt. Desert Island, Maine; Block Island, Rhode Island; arbitrary divisions of larger Maine counties and of Coös County, New Hampshire).



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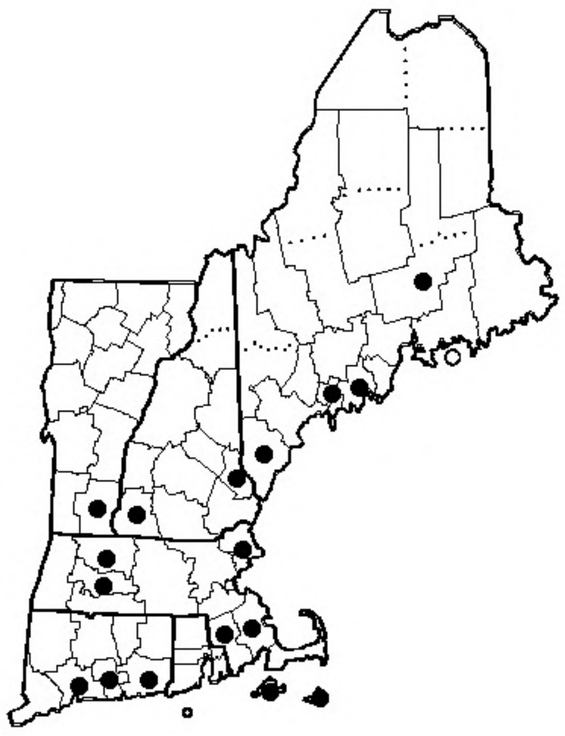

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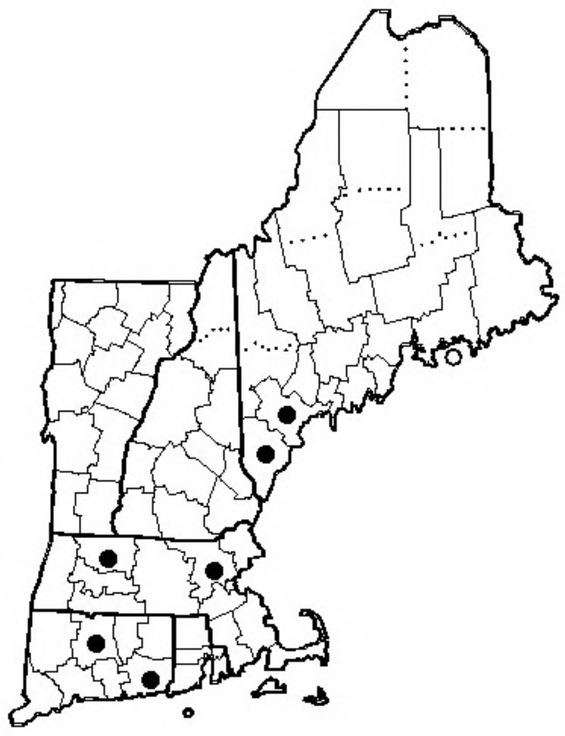

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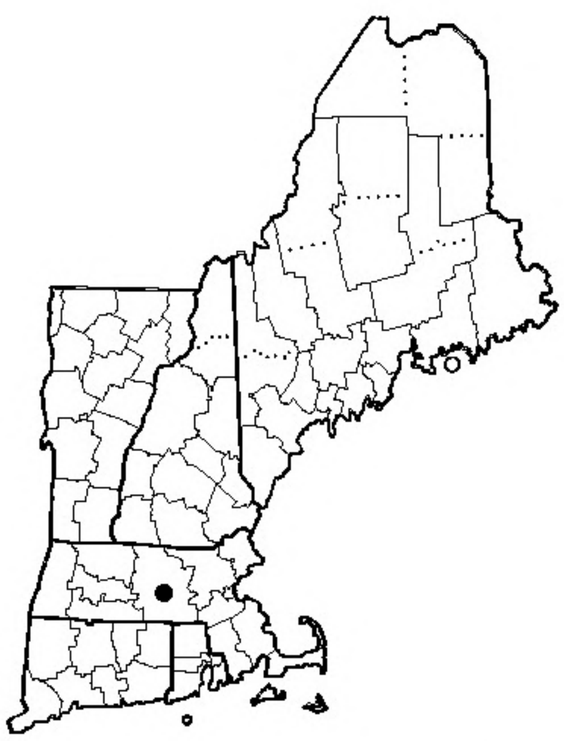

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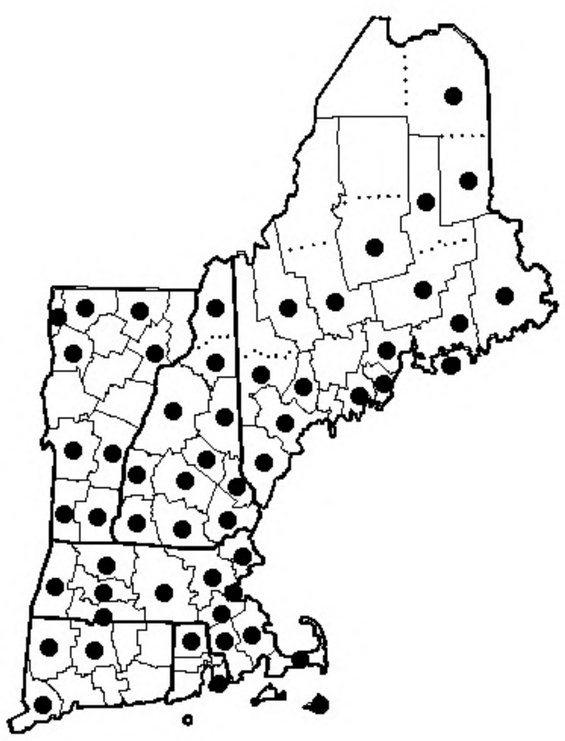

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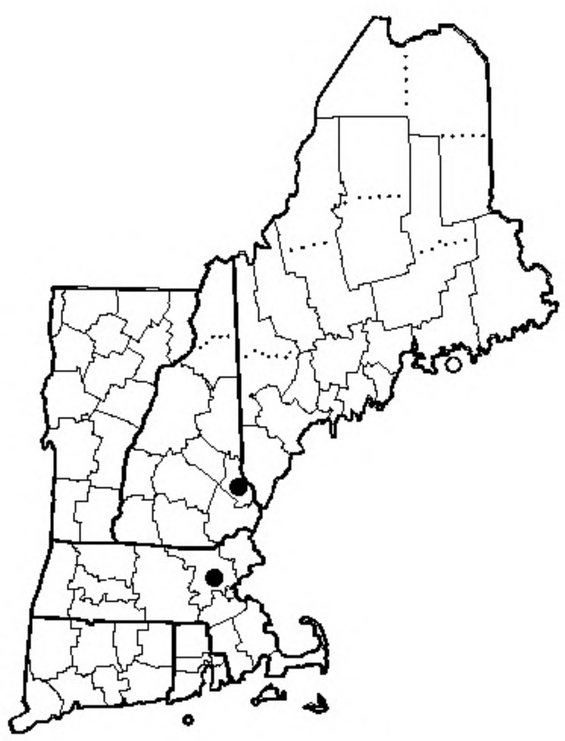

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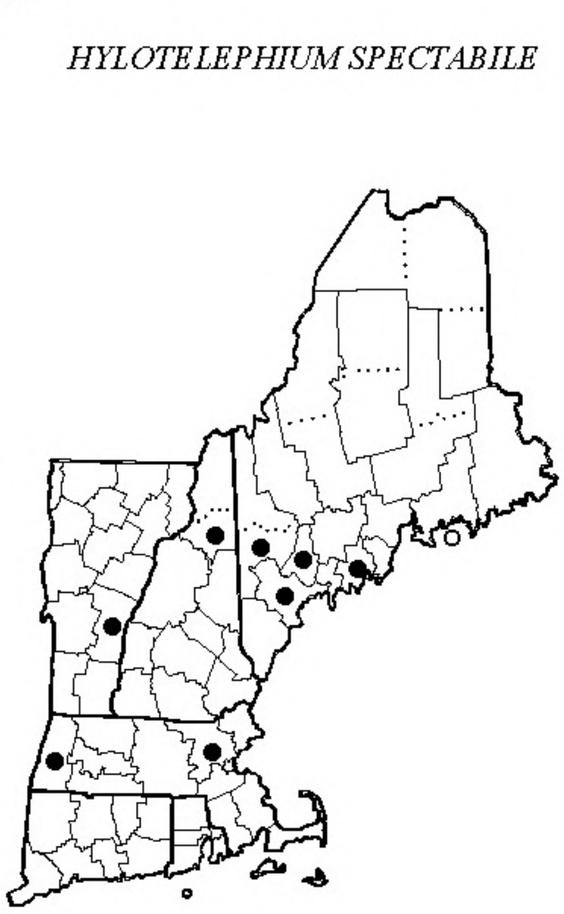

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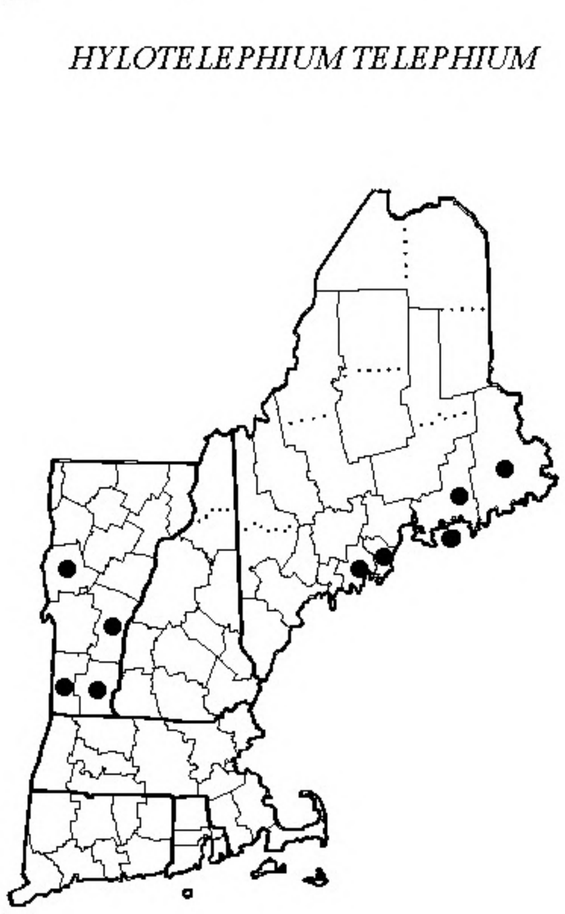

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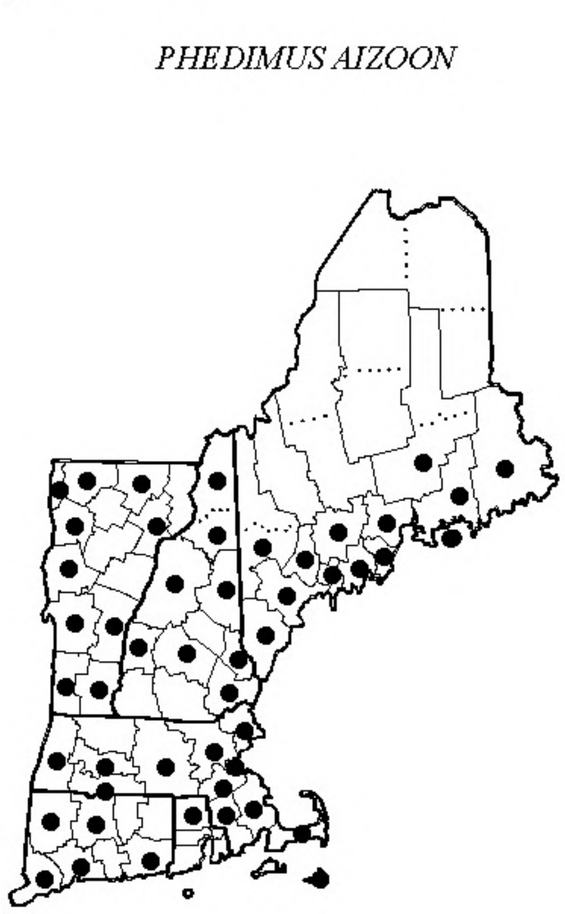
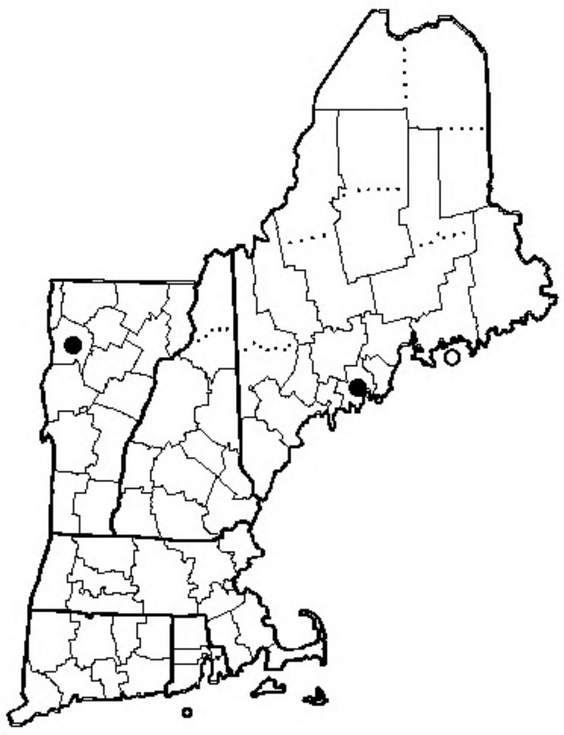
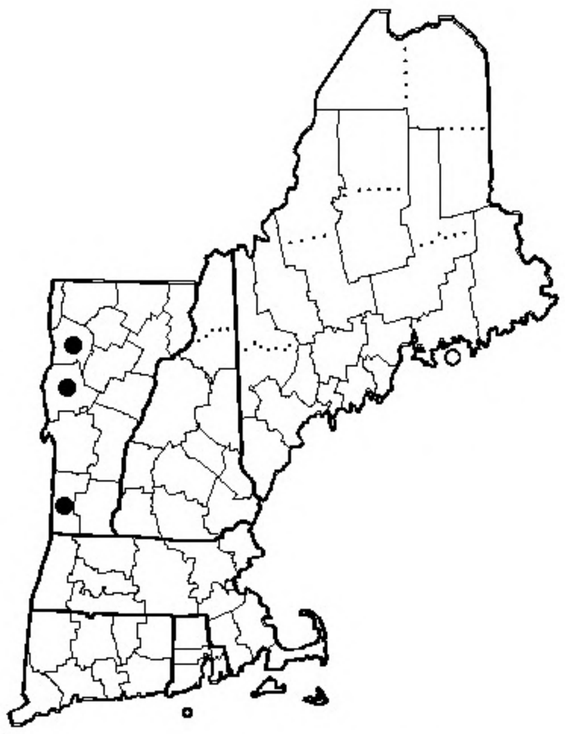


SEDUM ACRE

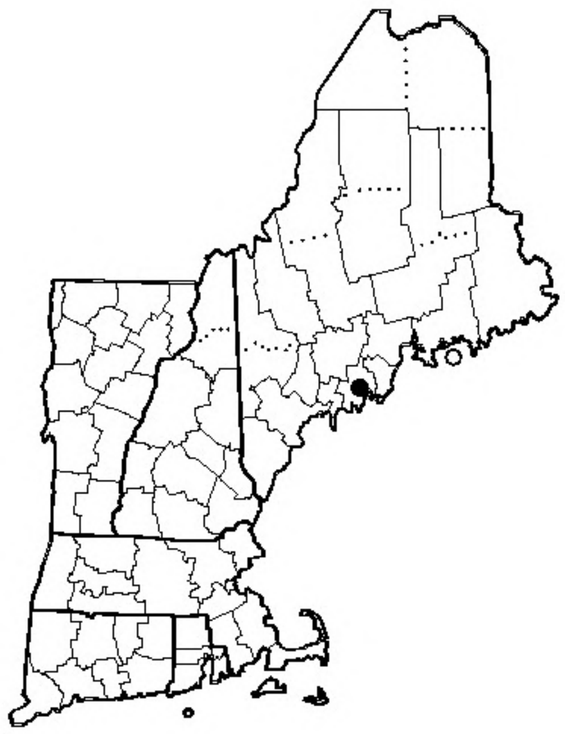
Figure 2. Distribution maps.



SEDUM ALBUM



SEDUM HISPANICUM



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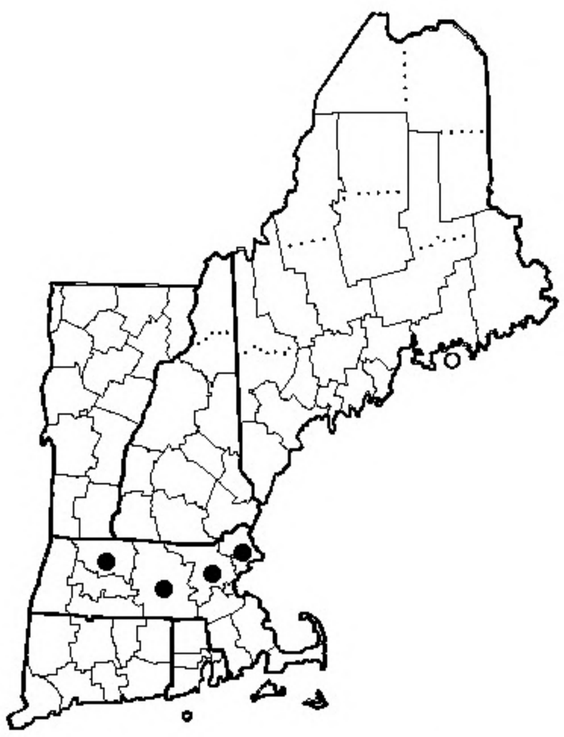

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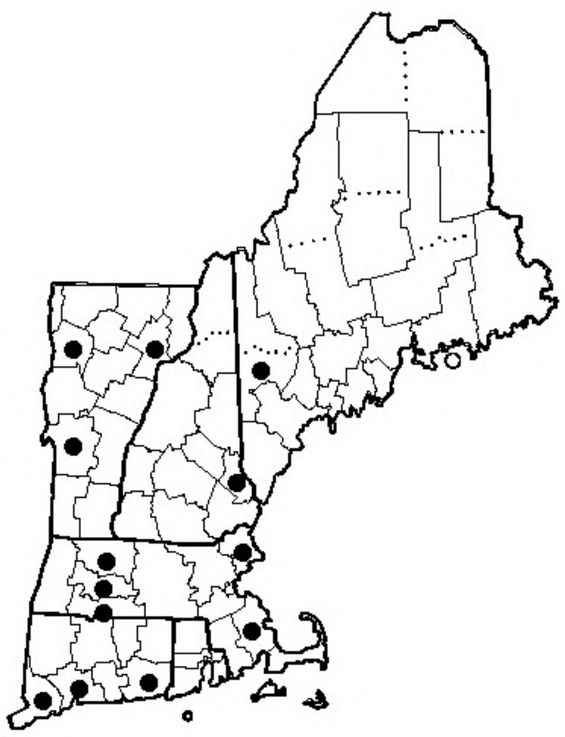

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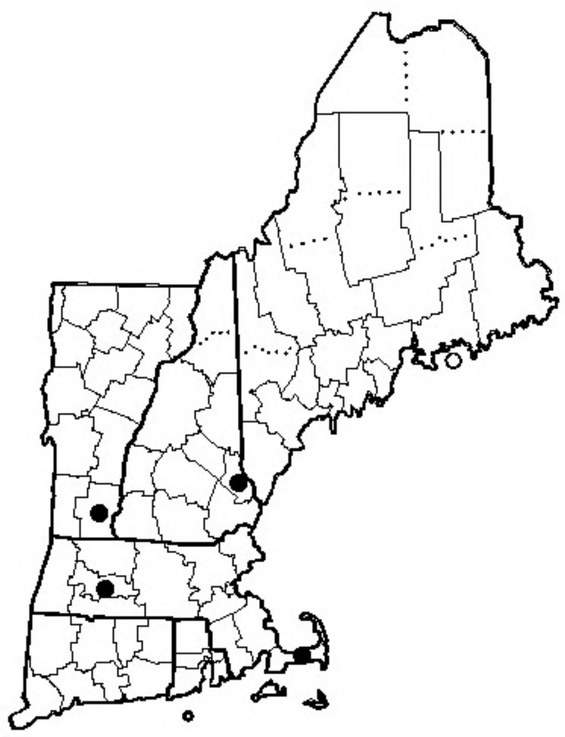

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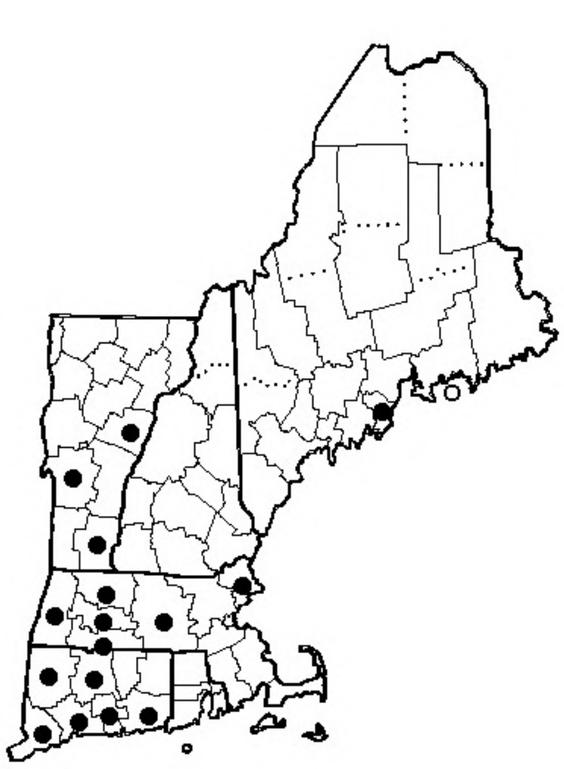

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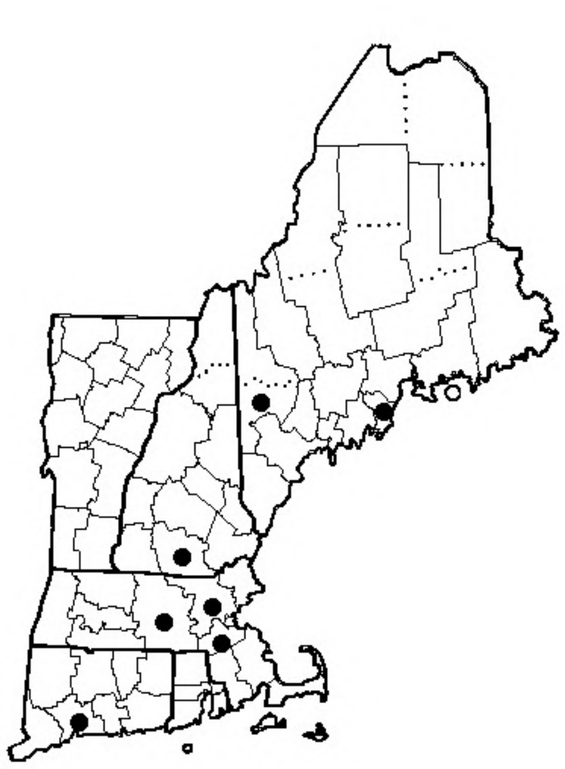

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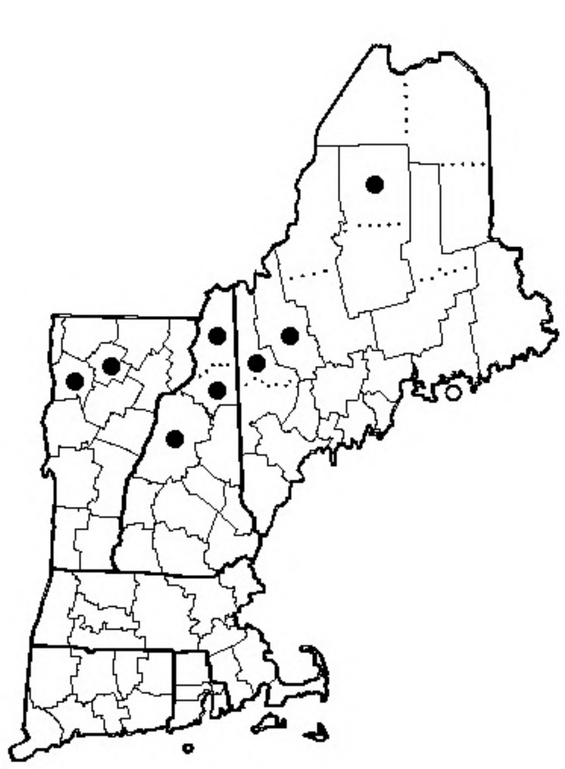
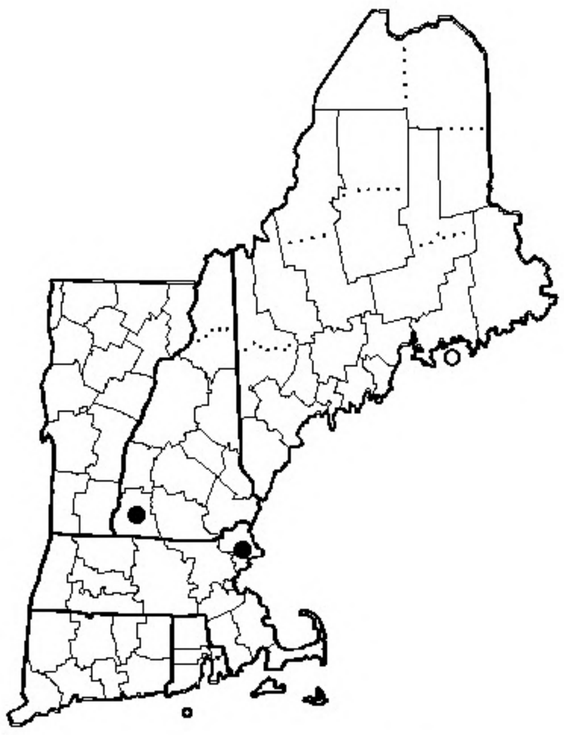
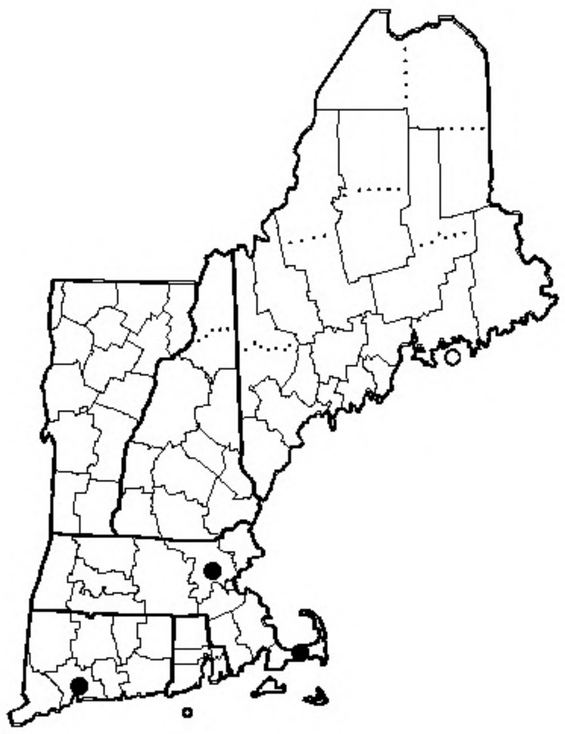


Diapensia lapponica

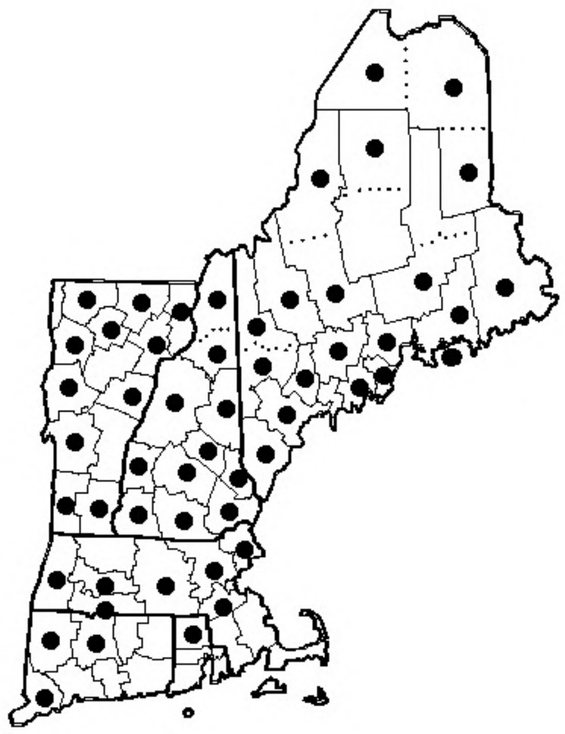
Figure 3. Distribution maps.



GALAX URCEOLATA



Diospyros virginiana



Andromeda polifolia
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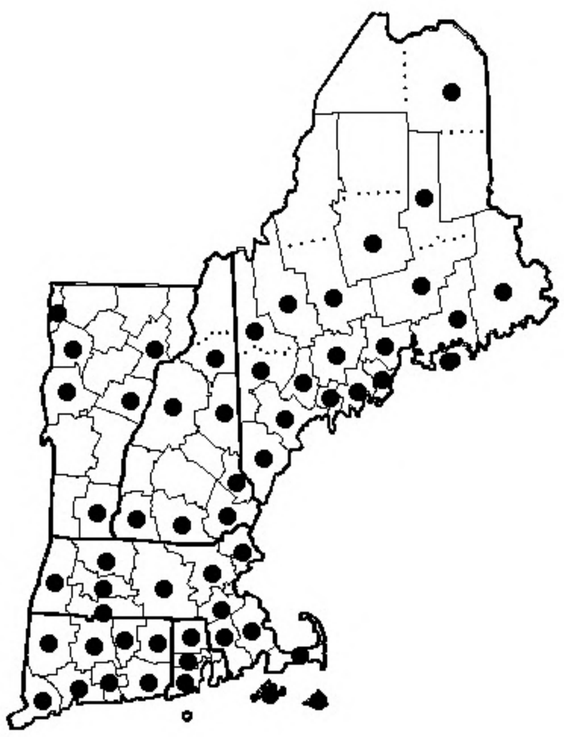
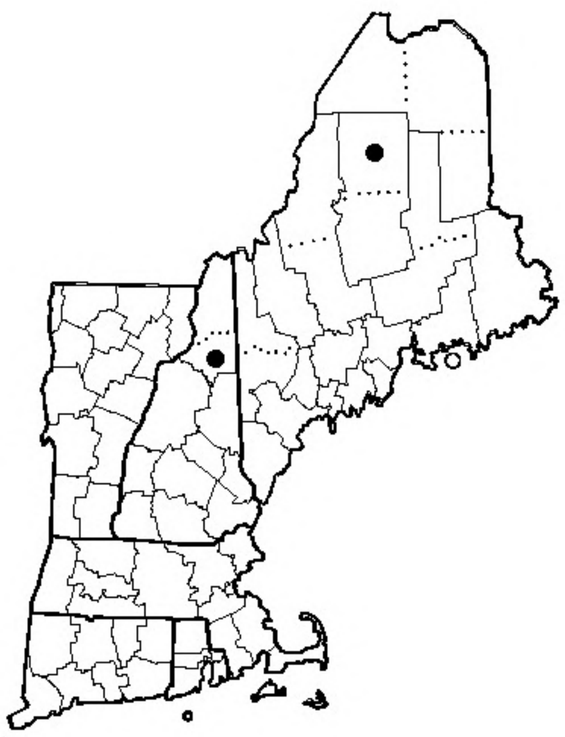


Arctostaphylos uva-ursi



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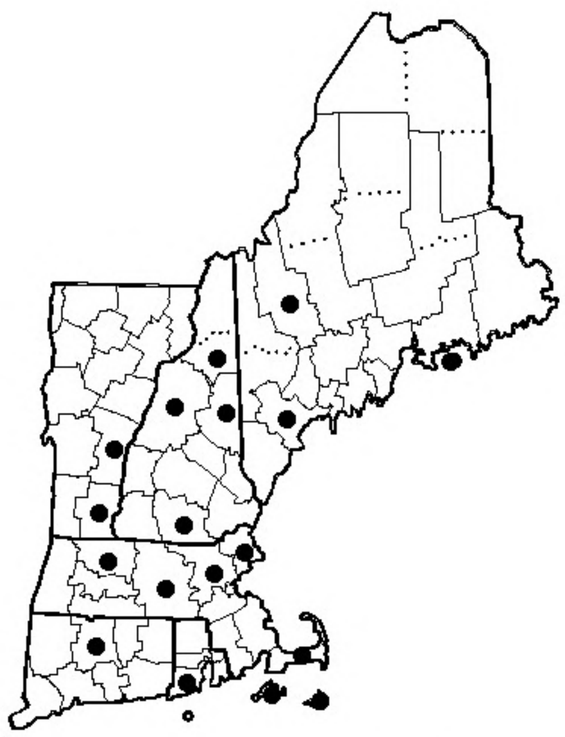

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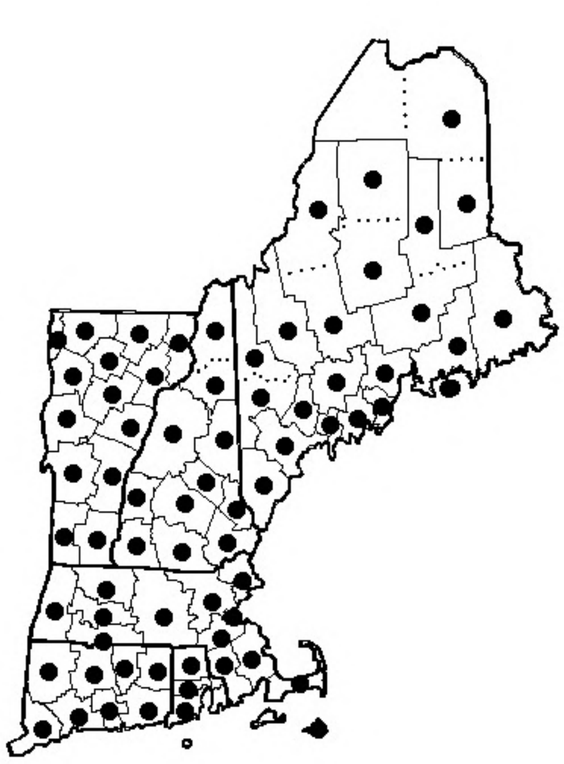
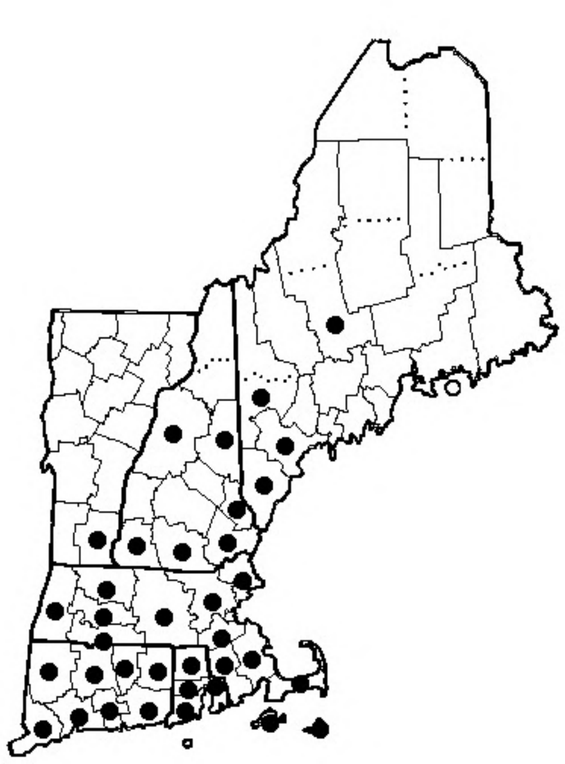


Chamaedaphne calyculata



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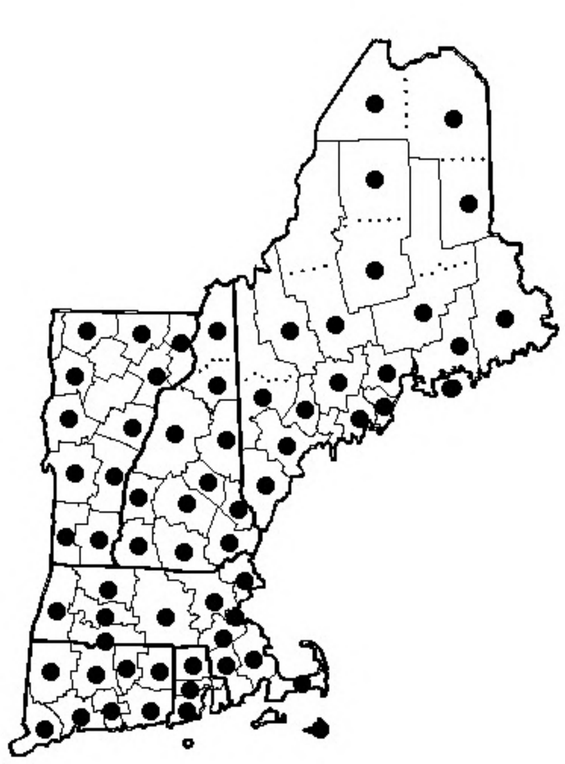
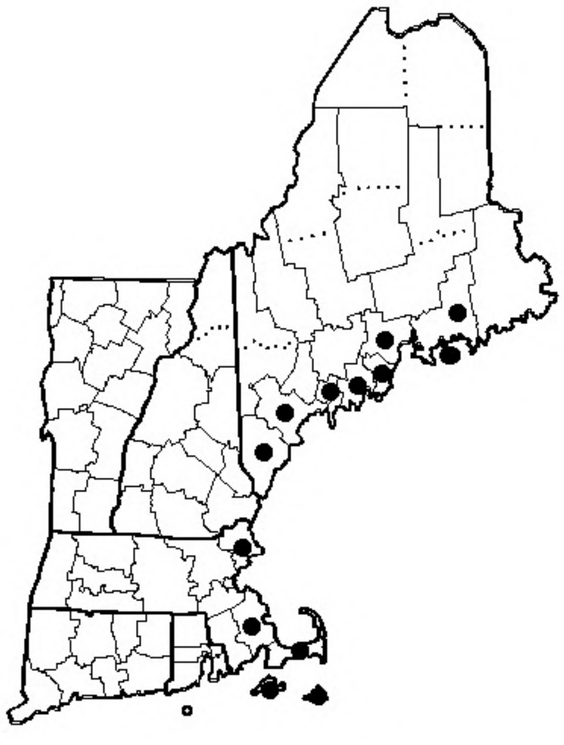
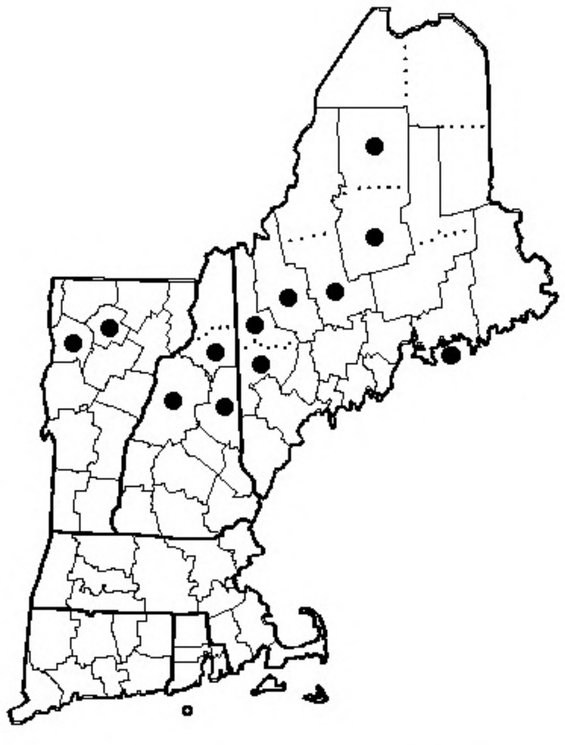


Chimaphila umbellata
subsp. *umbellata*

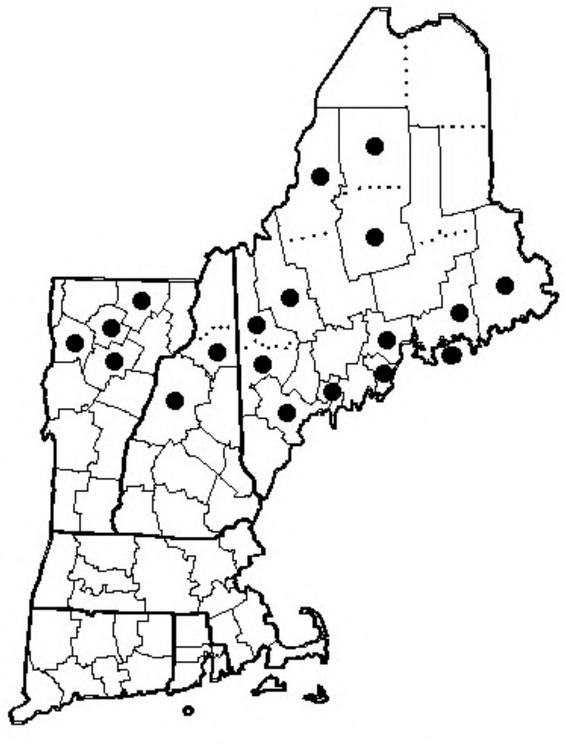
Figure 4. Distribution maps.



Corema conradii



Empetrum atropurpureum



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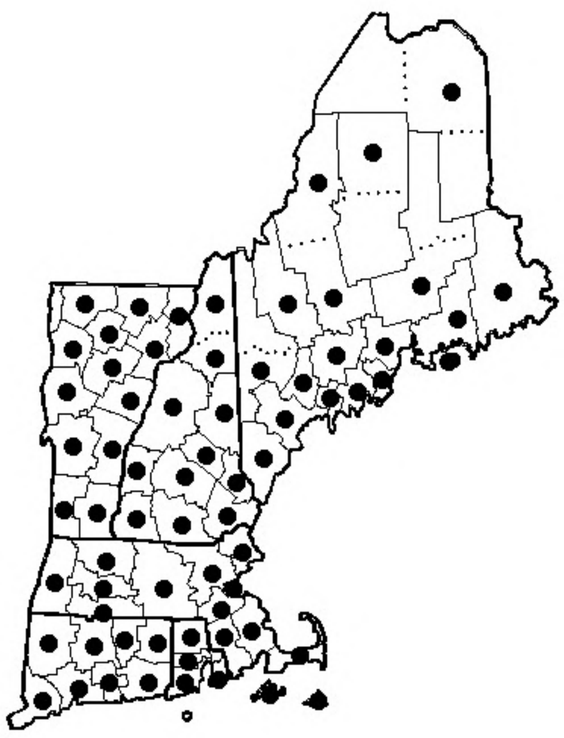

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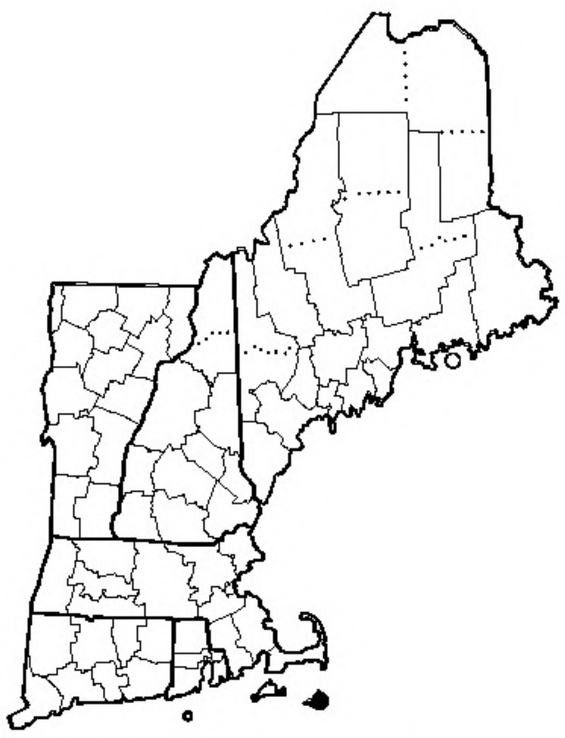
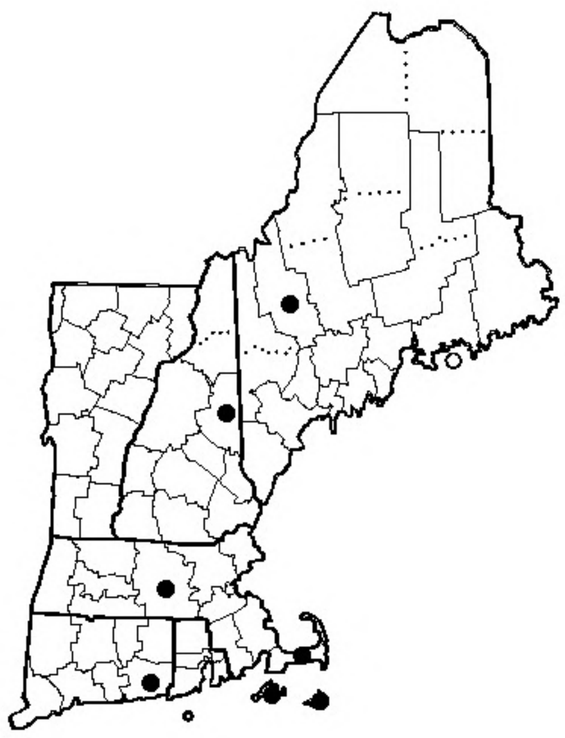
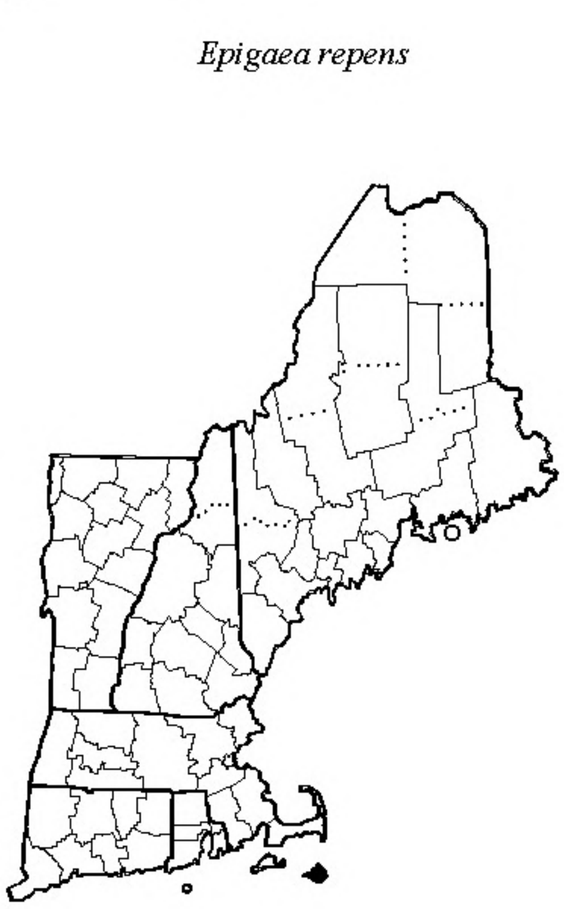


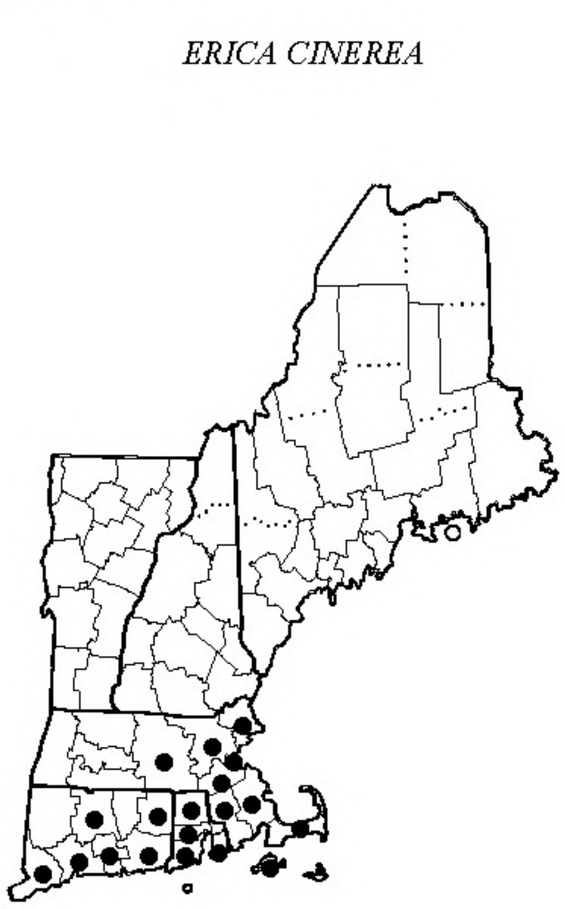
ERICA CINEREA



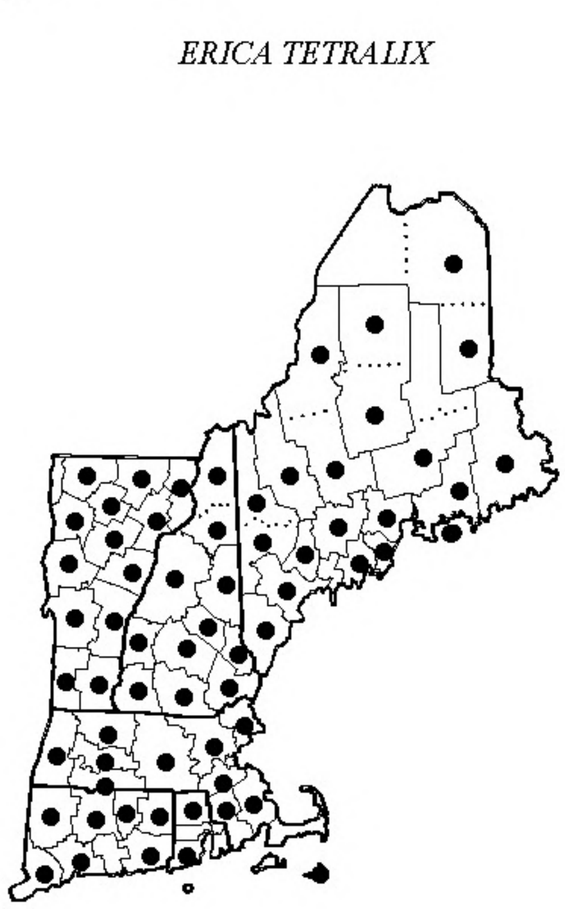
ERICA TETRALIX



ERICA VAGANS

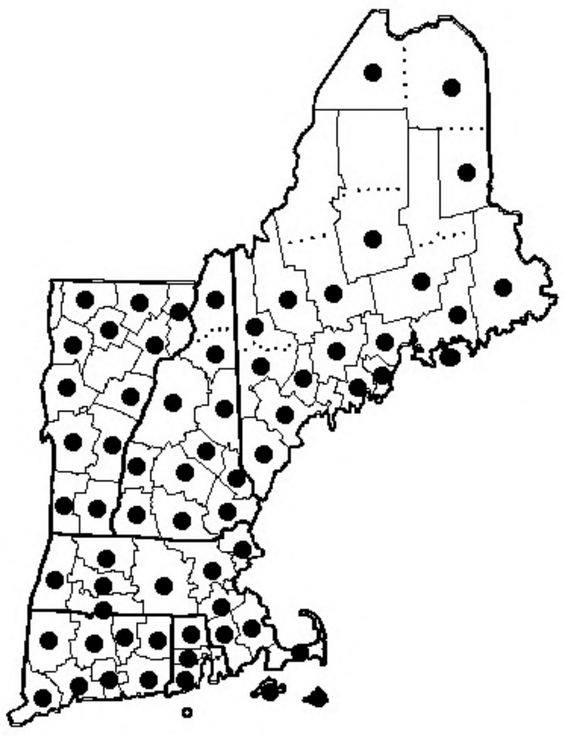


Eubotrys racemosa

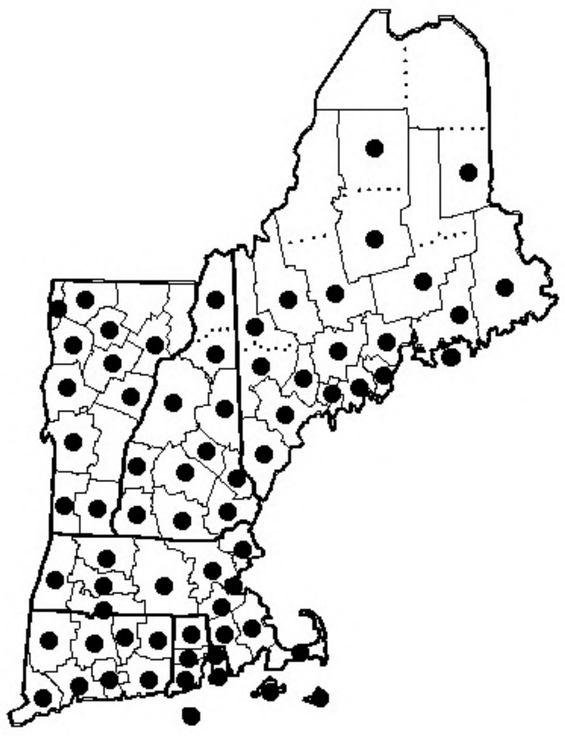


Gaultheria hispidula

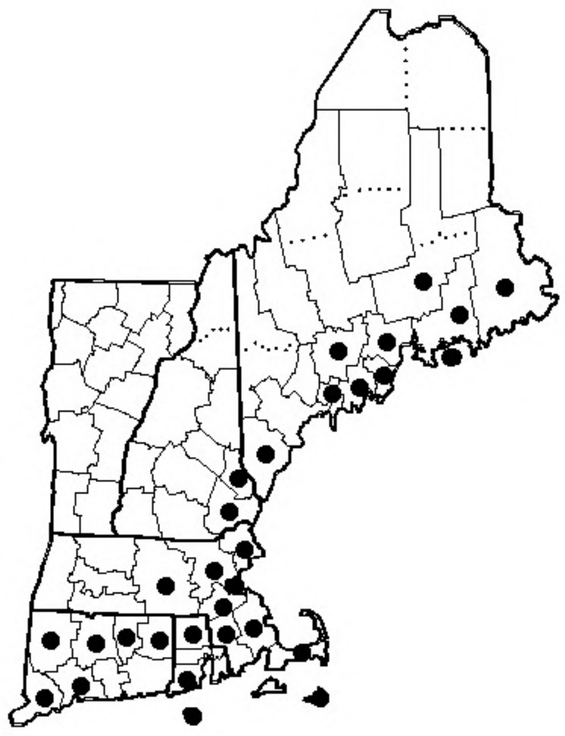
Figure 5. Distribution maps.



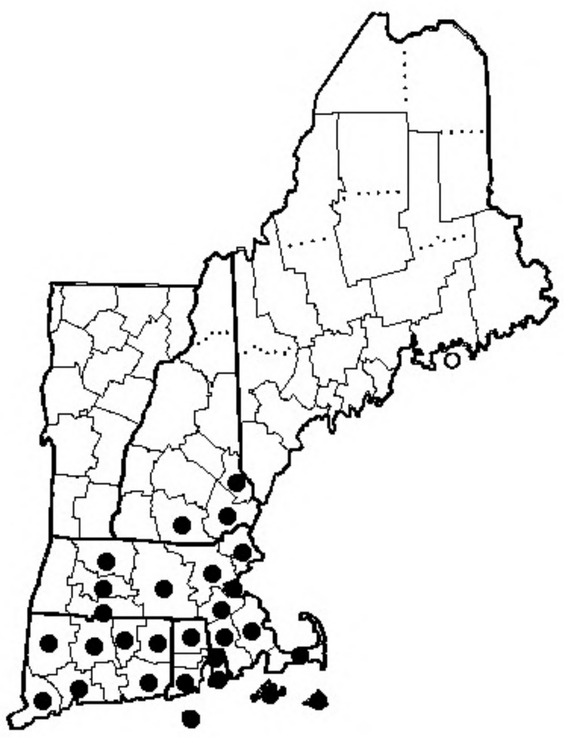
Gaultheria procumbens



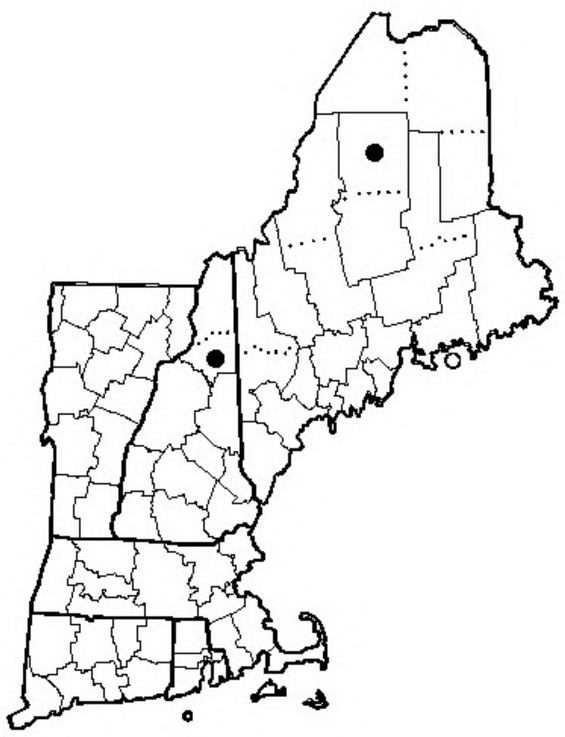
Gaylussacia baccata



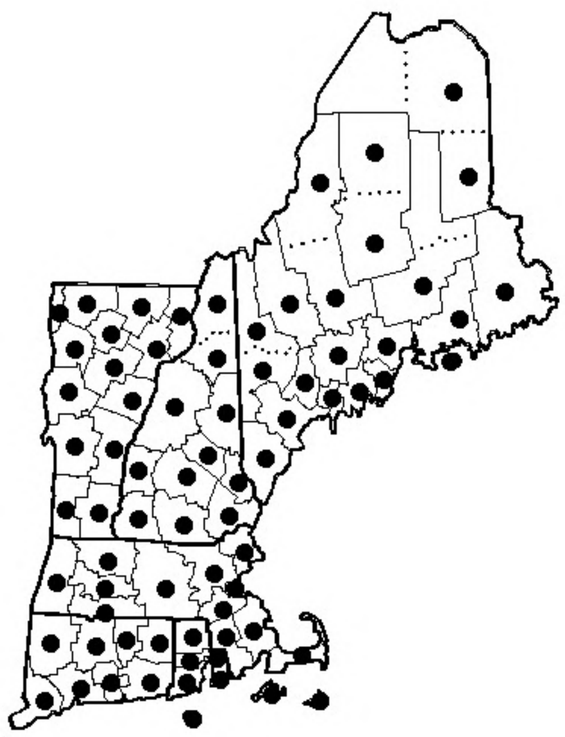
Gaylussacia bigeloviana



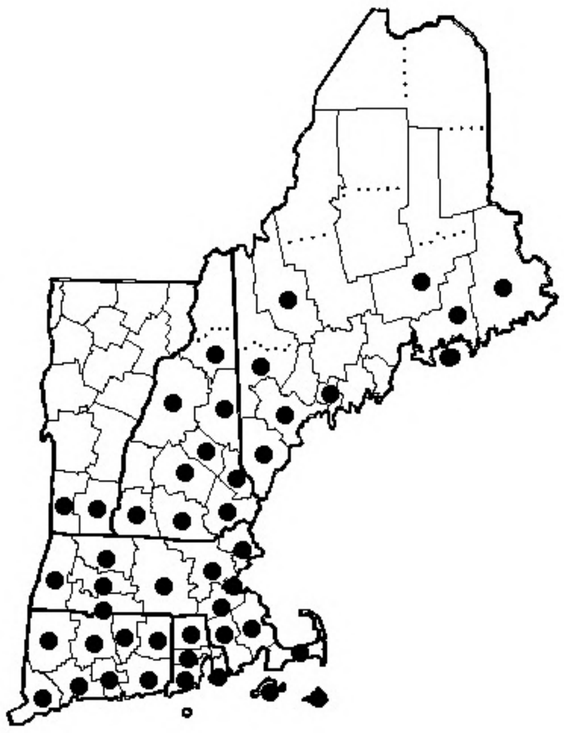
Gaylussacia frondosa



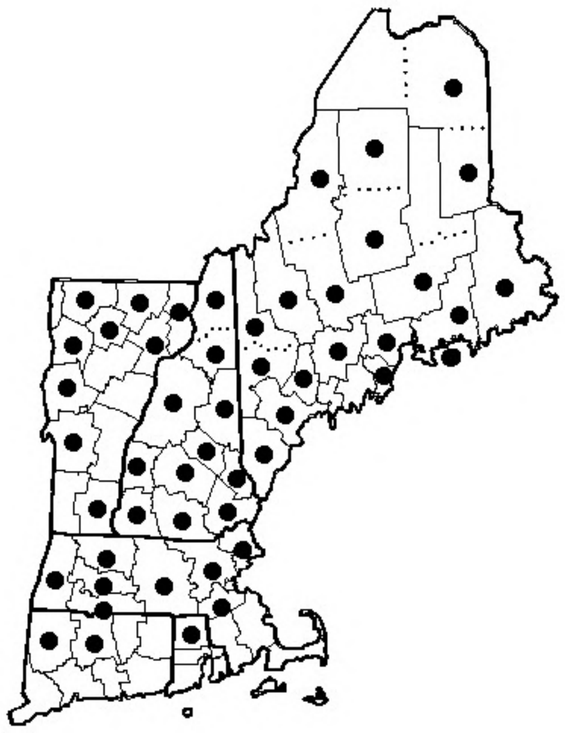
Harrimanella hypnoides



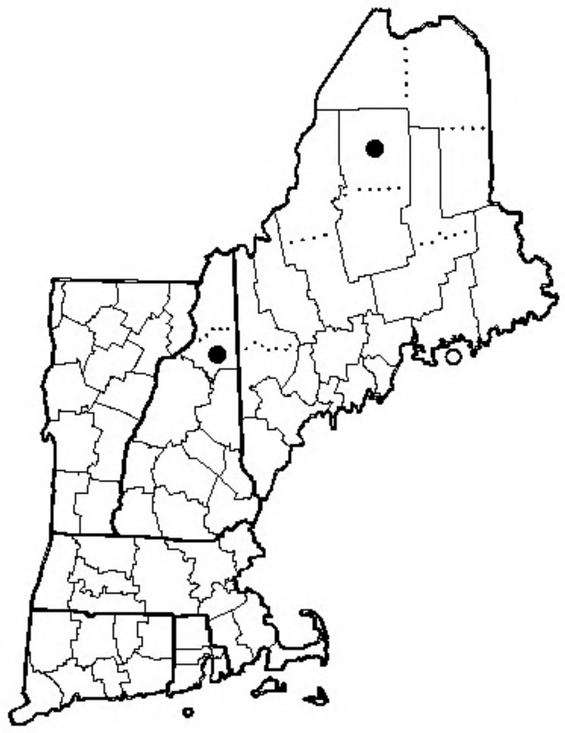
Kalmia angustifolia
var. *angustifolia*



Kalmia latifolia

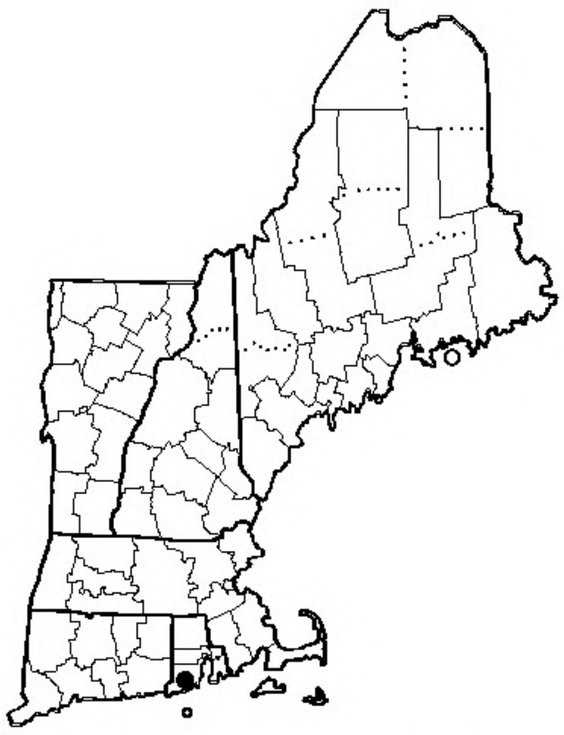


Kalmia polifolia

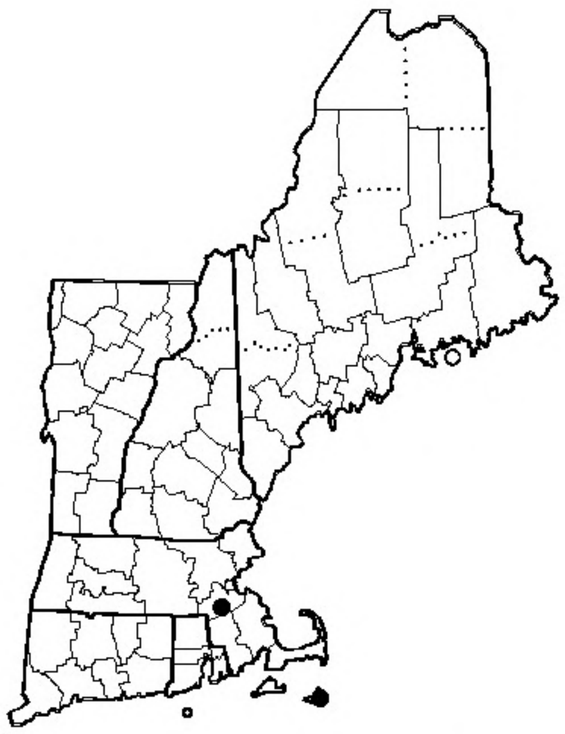


Kalmia procumbens

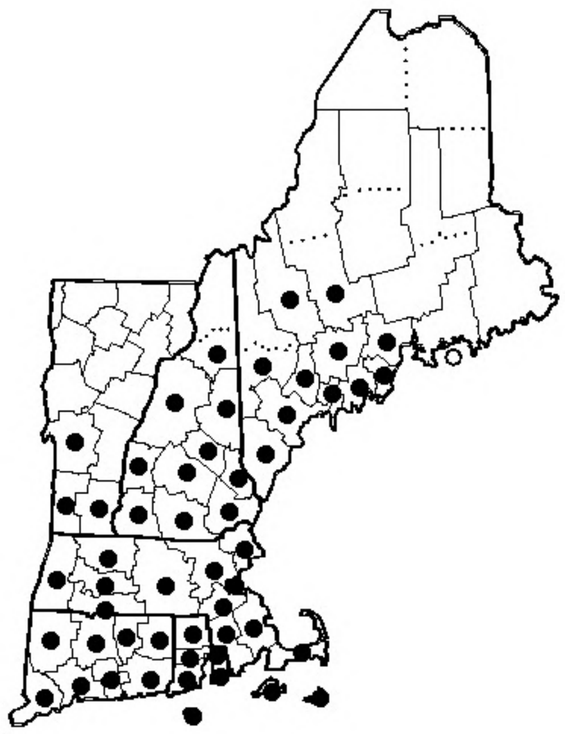
Figure 6. Distribution maps.



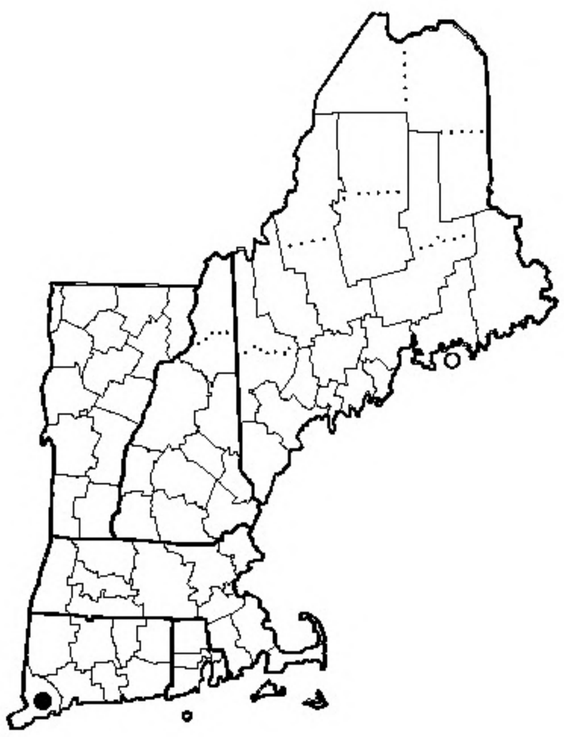
LEUCOTHOË AXILLARIS



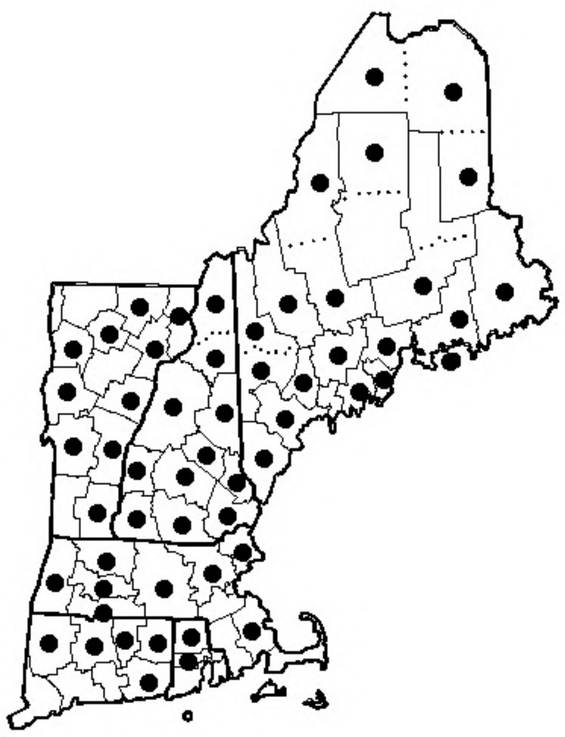
LEUCOTHOË FONTANESIANA



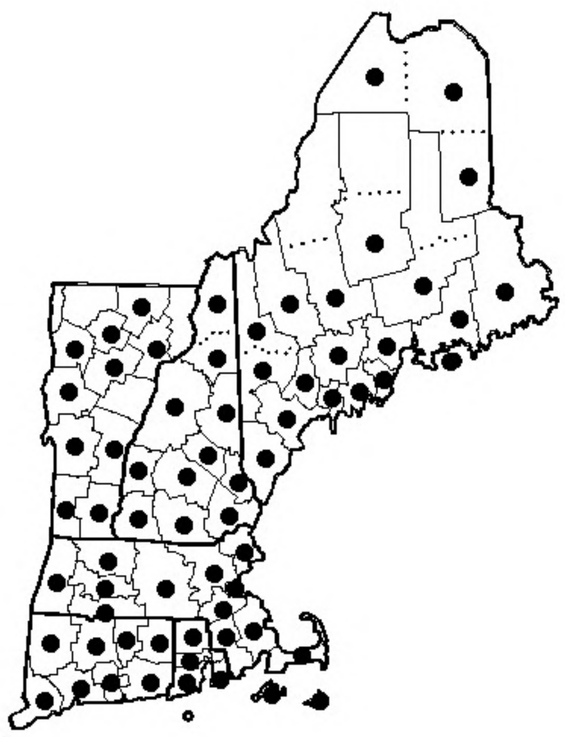
Lyonia ligustrina
subsp. *ligustrina*



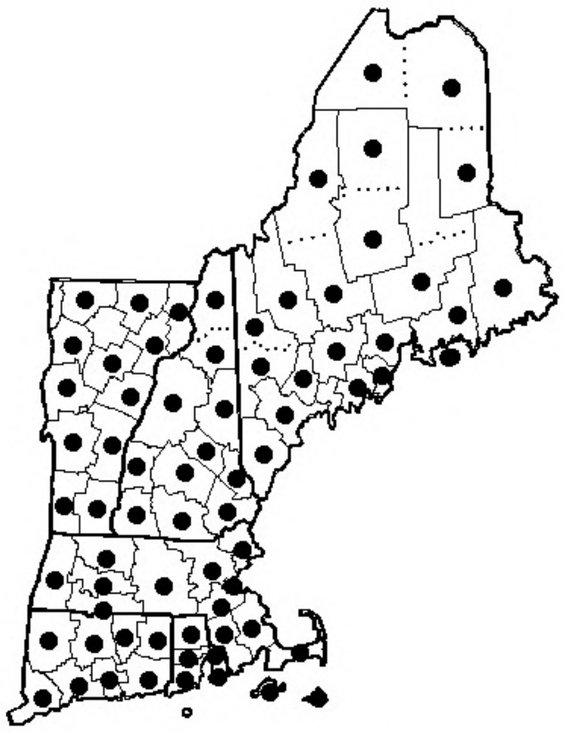
Lyonia mariana



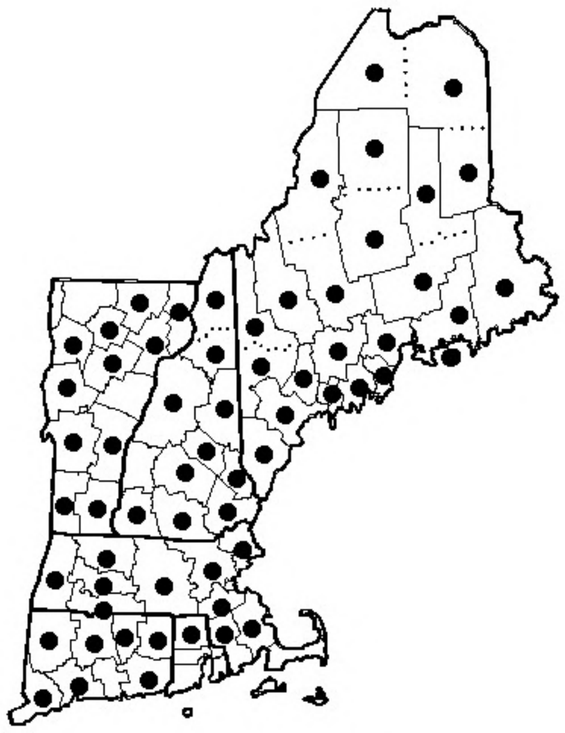
Moneses uniflora



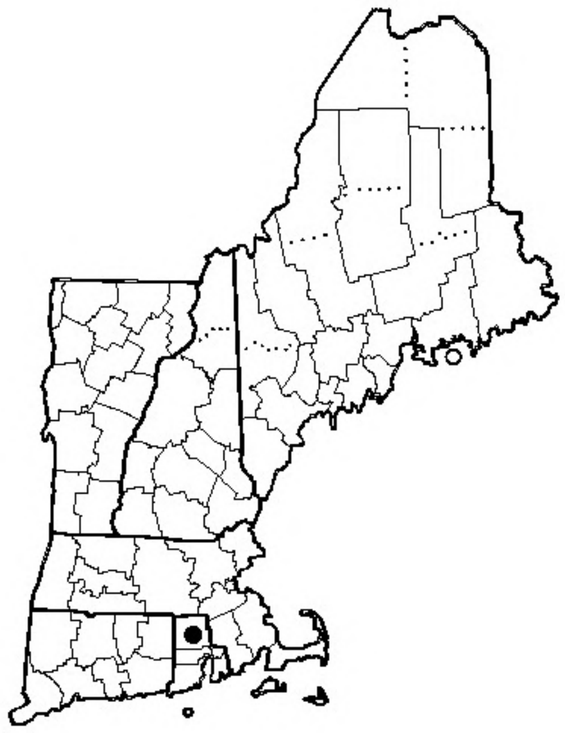
Monotropa hypopitys



Monotropa uniflora

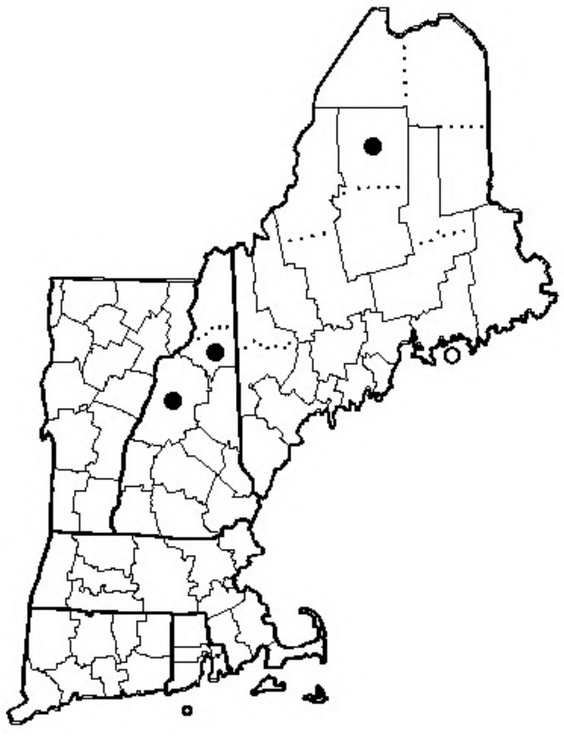


Orthilia secunda

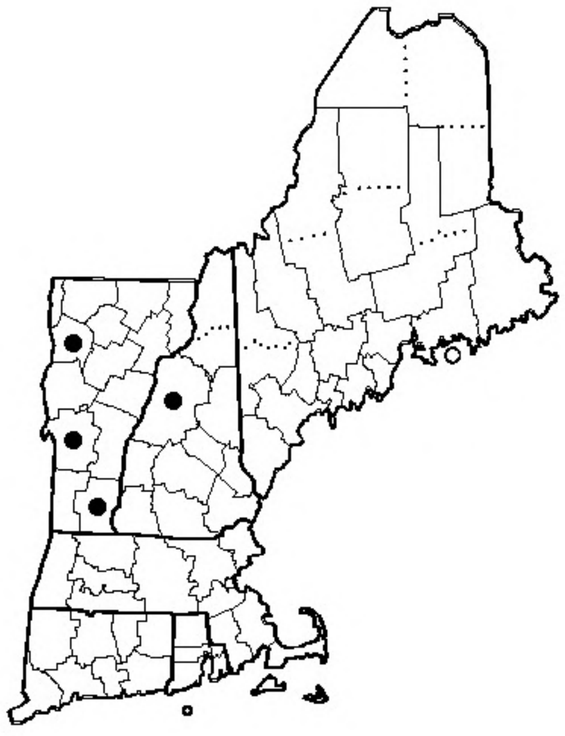


OXYDENDRUM ARBOREUM

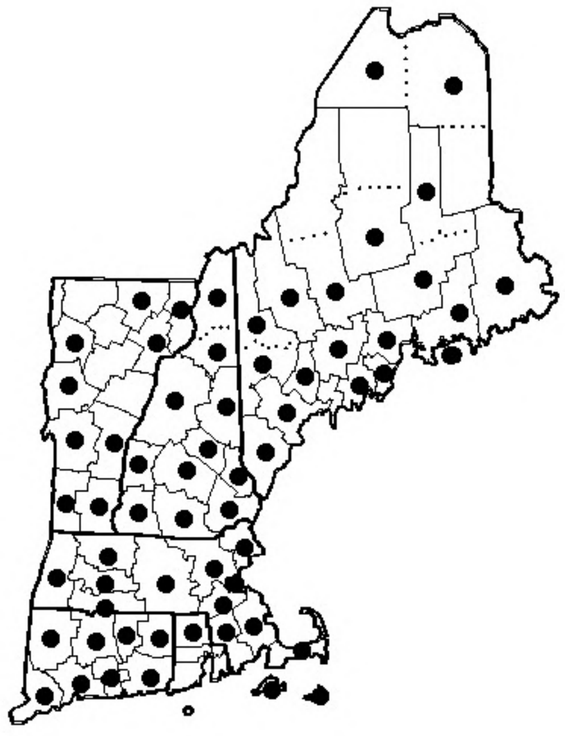
Figure 7. Distribution maps.



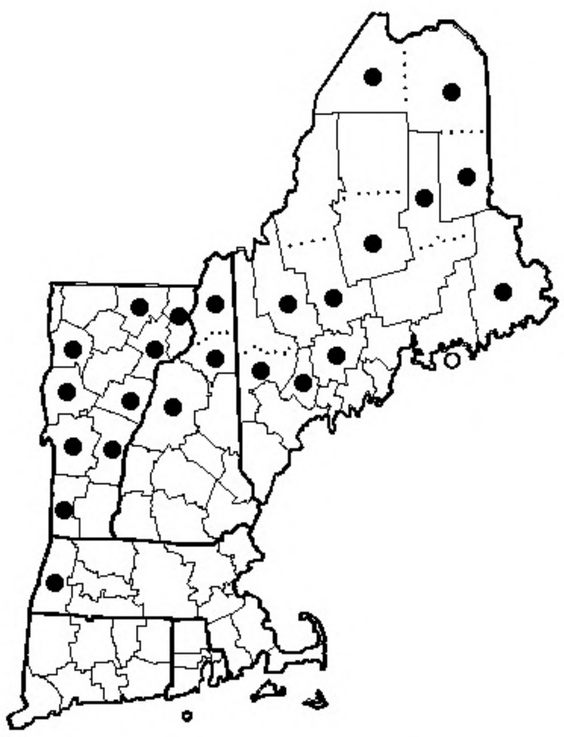
Phyllodoce caerulea



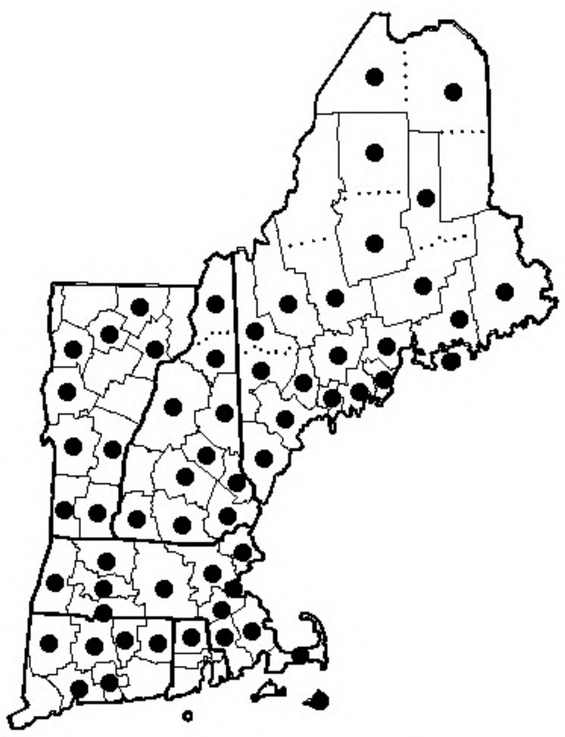
Pterospora andromeda



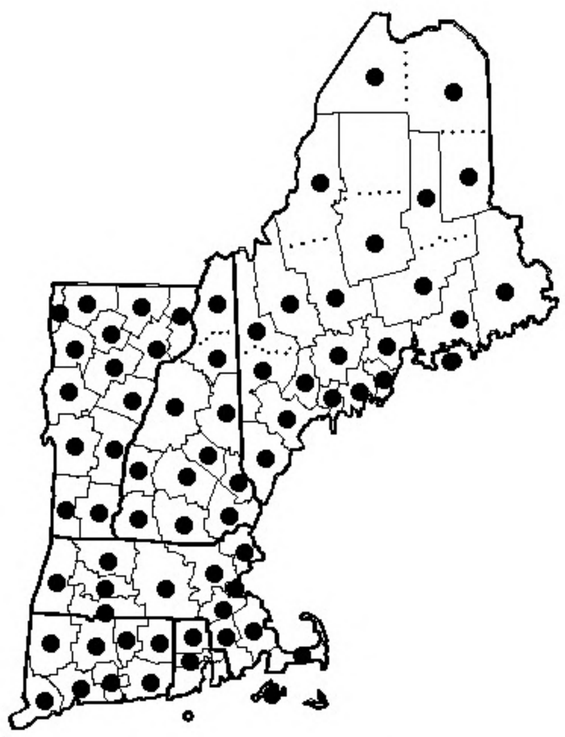
Pyrola americana



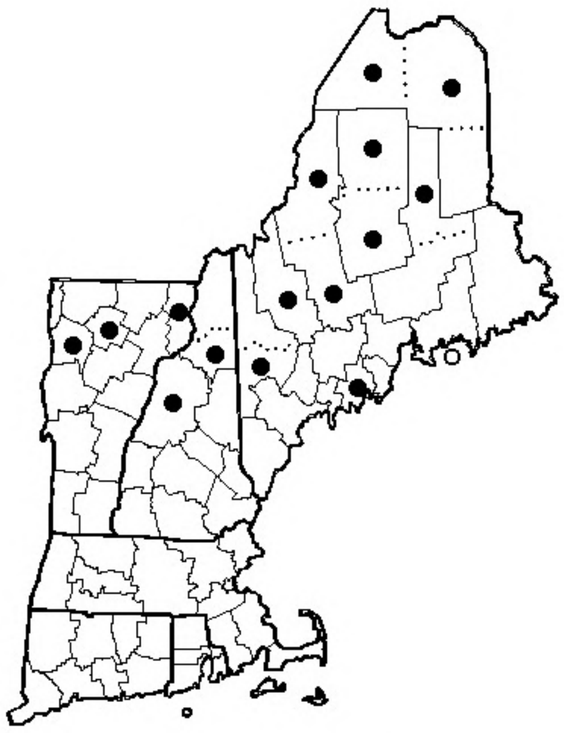
Pyrola asarifolia
subsp. *asarifolia*



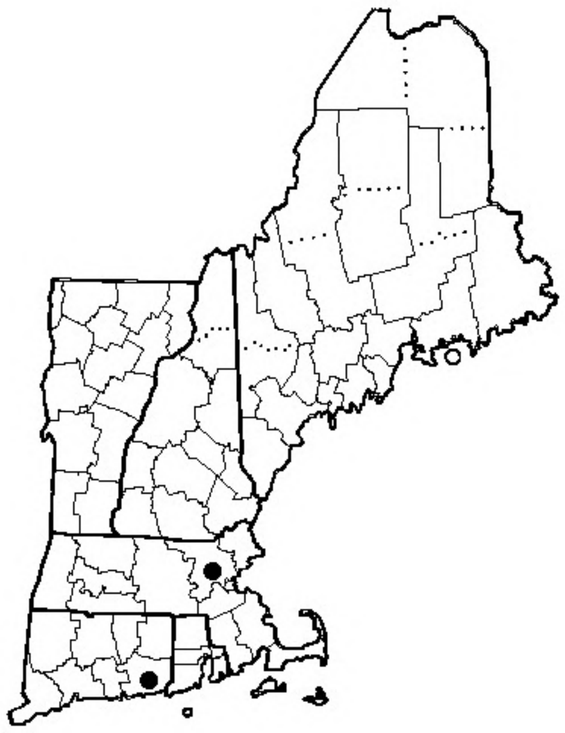
Pyrola chlorantha



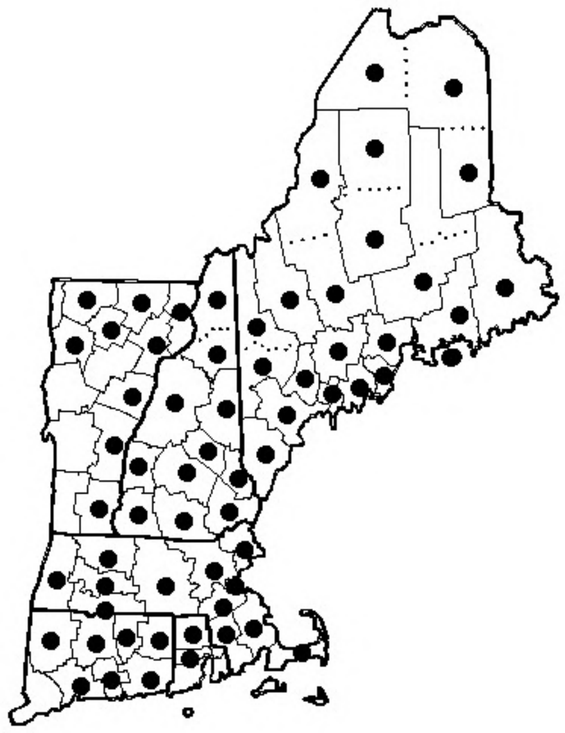
Pyrola elliptica



Pyrola minor

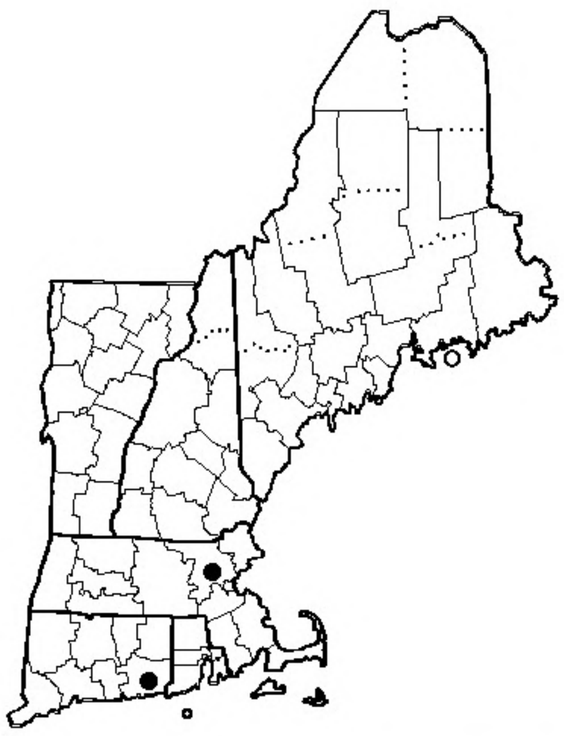


RHODODENDRON CALENDULACEUM

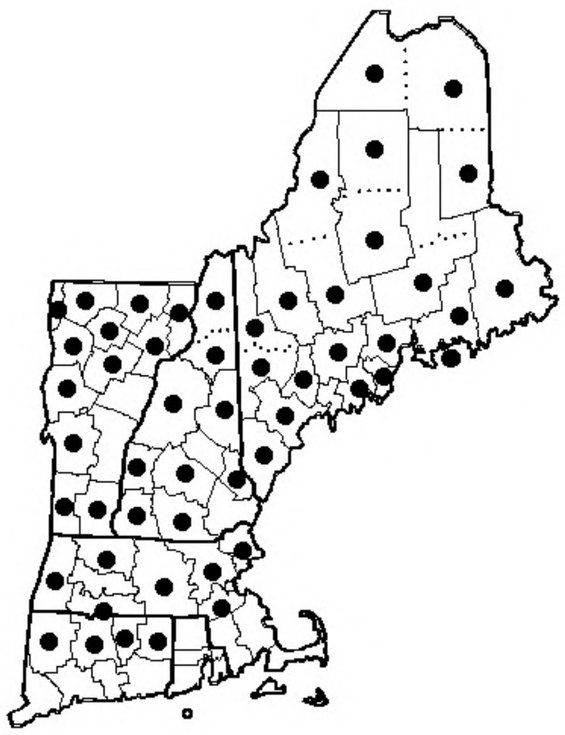


Rhododendron canadense

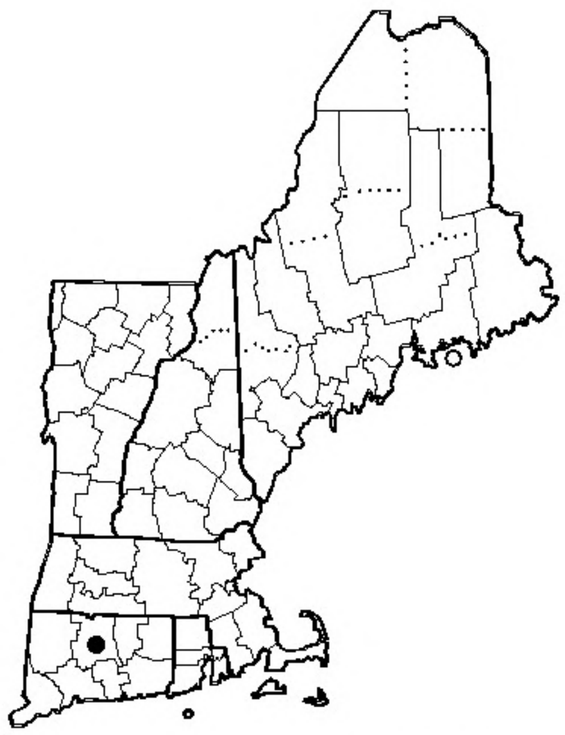
Figure 8. Distribution maps.



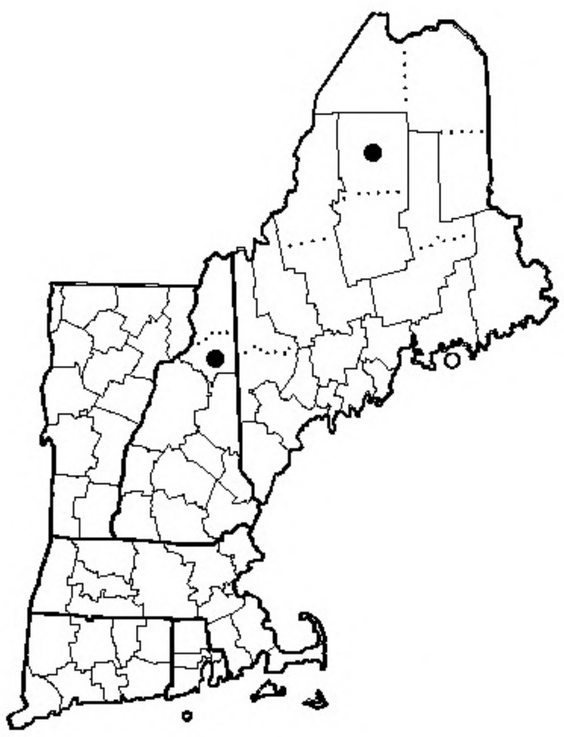
RHODODENDRON CATAWBIENSE



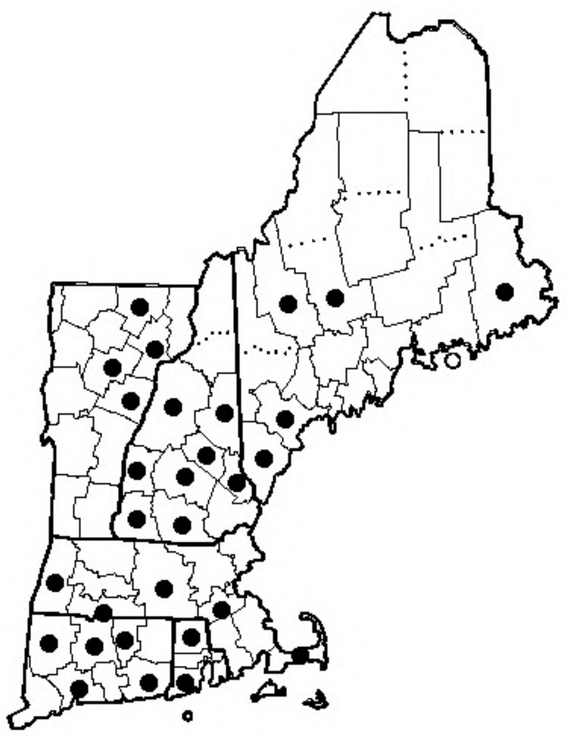
Rhododendron groenlandicum



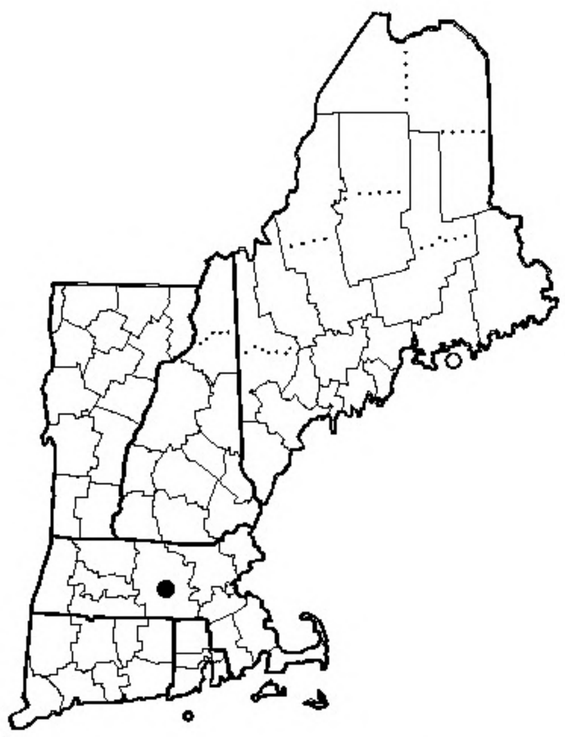
RHODODENDRON JAPONICUM



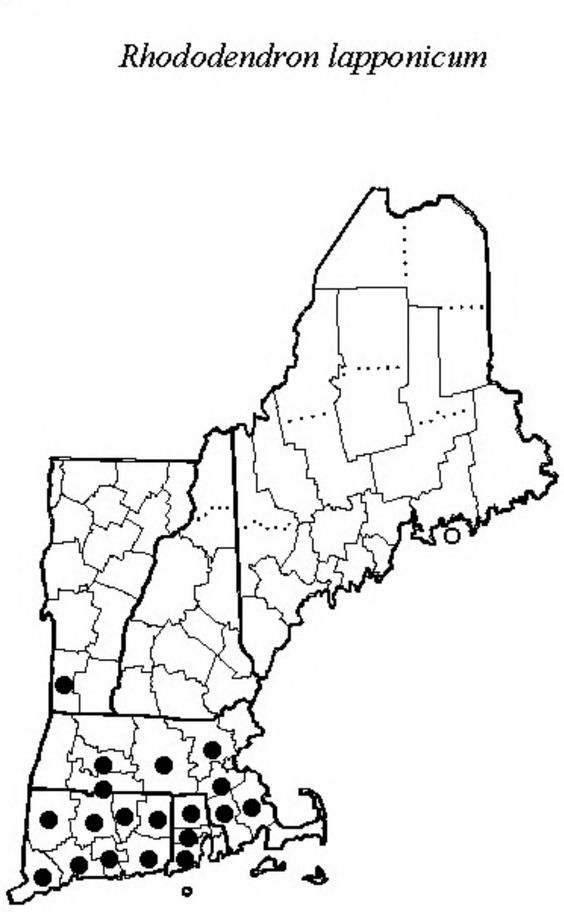
Rhododendron lapponicum



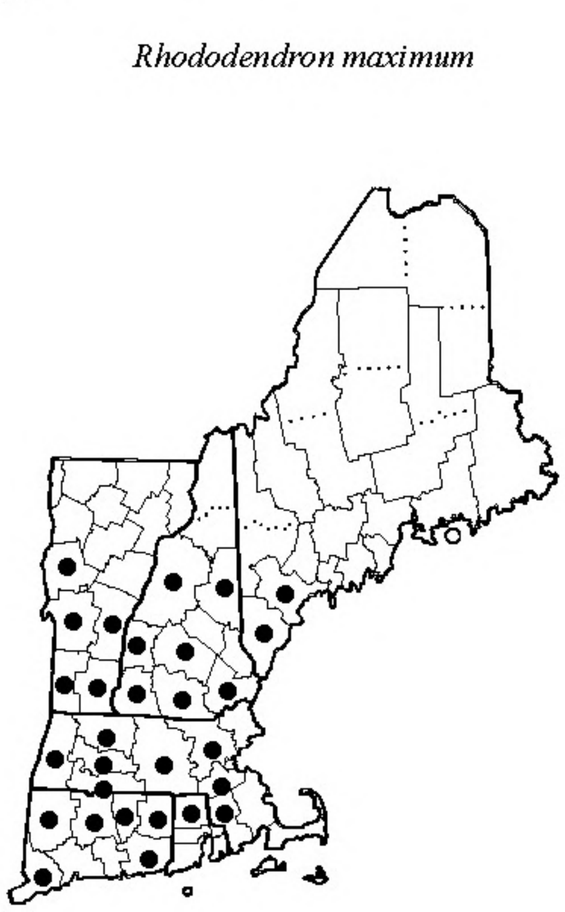
Rhododendron maximum



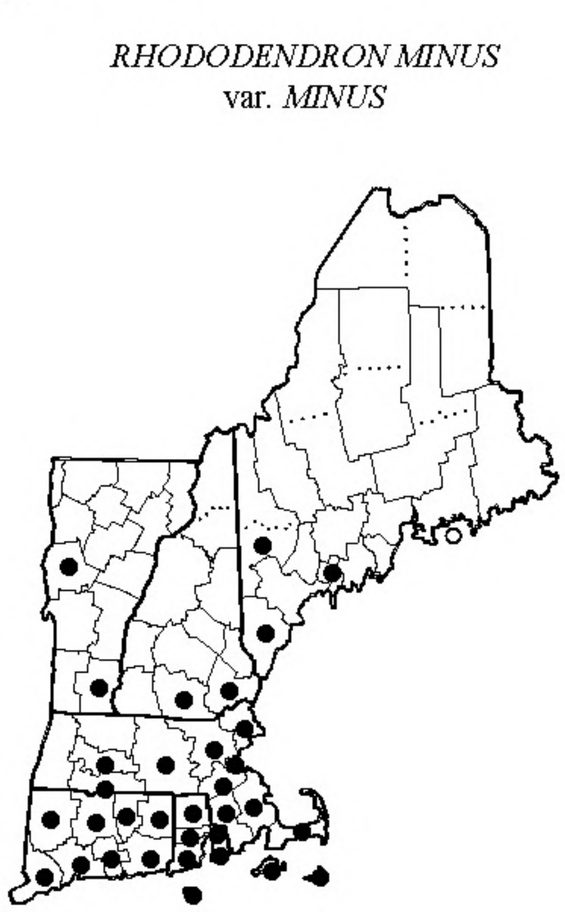
RHODODENDRON MINUS
var. *MINUS*



Rhododendron periclymenoides

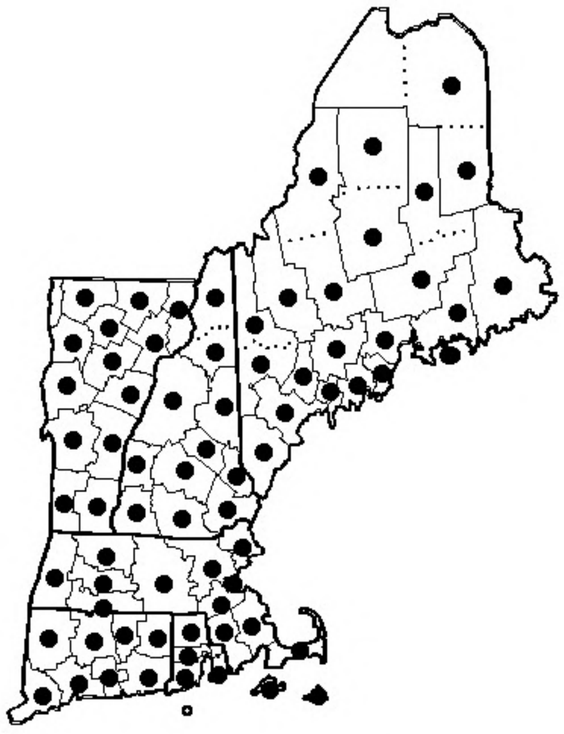


Rhododendron prinophyllum

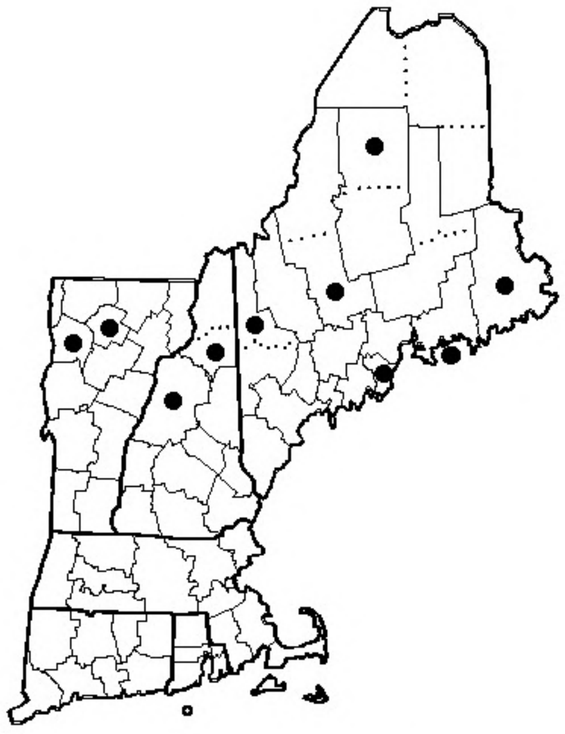


Rhododendron viscosum

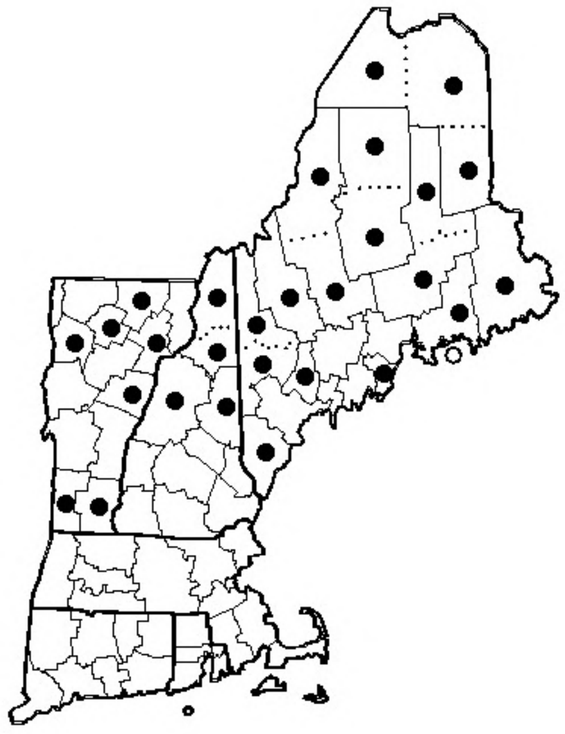
Figure 9. Distribution maps.



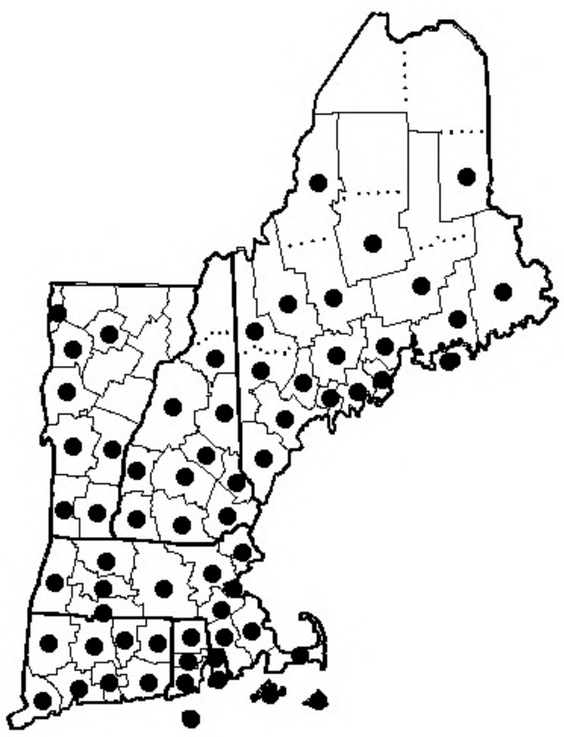
Vaccinium angustifolium



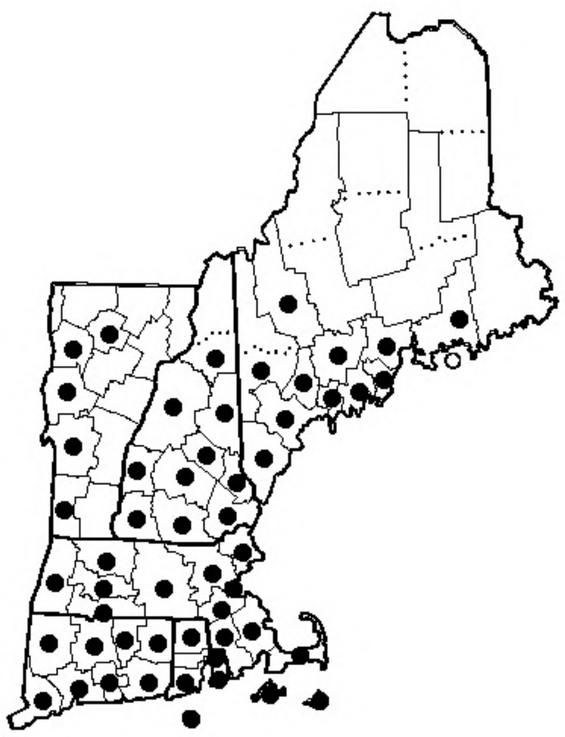
Vaccinium boreale



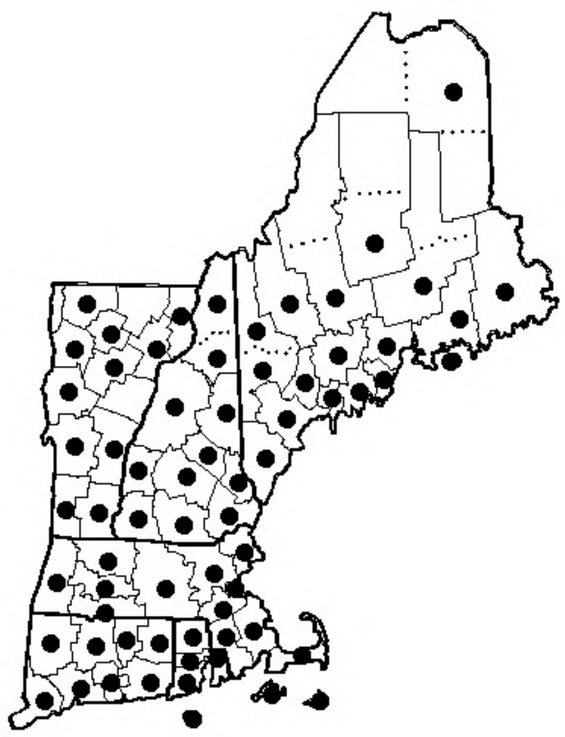
Vaccinium caespitosum



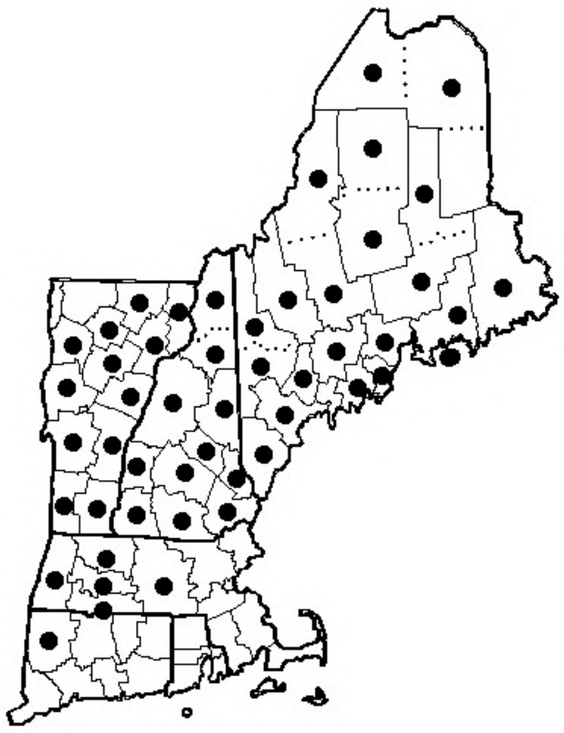
Vaccinium corymbosum



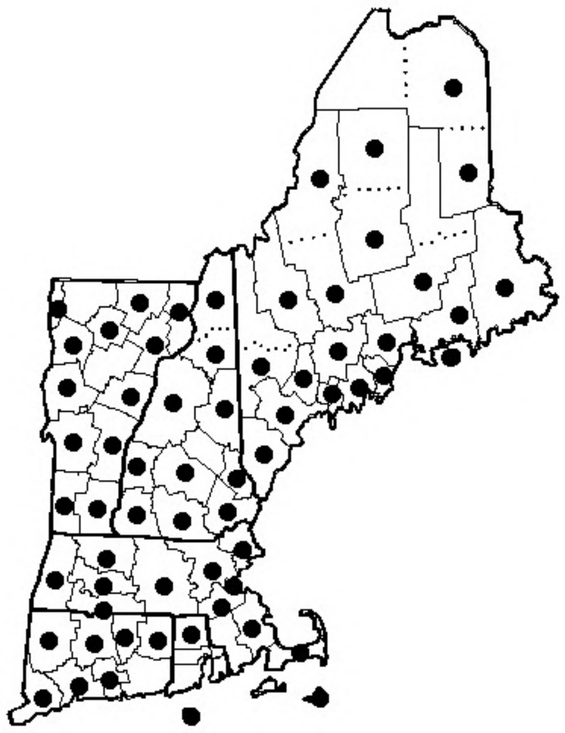
Vaccinium fuscatum



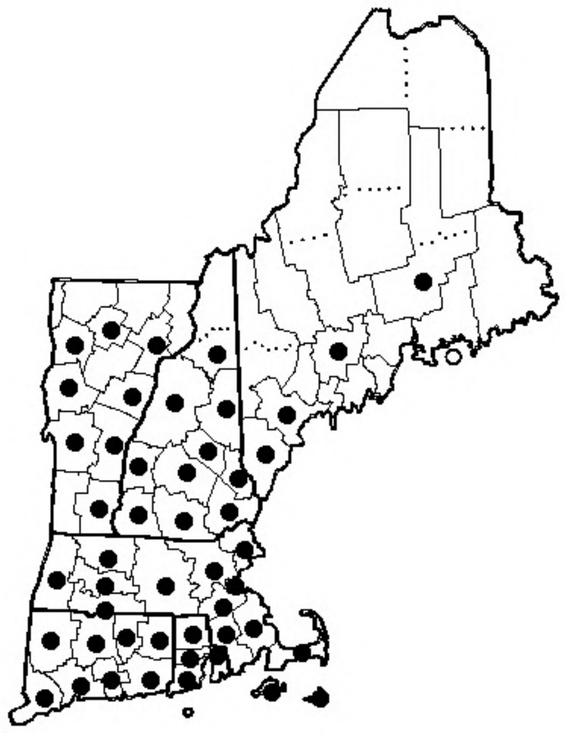
Vaccinium macrocarpon



Vaccinium myrtilloides

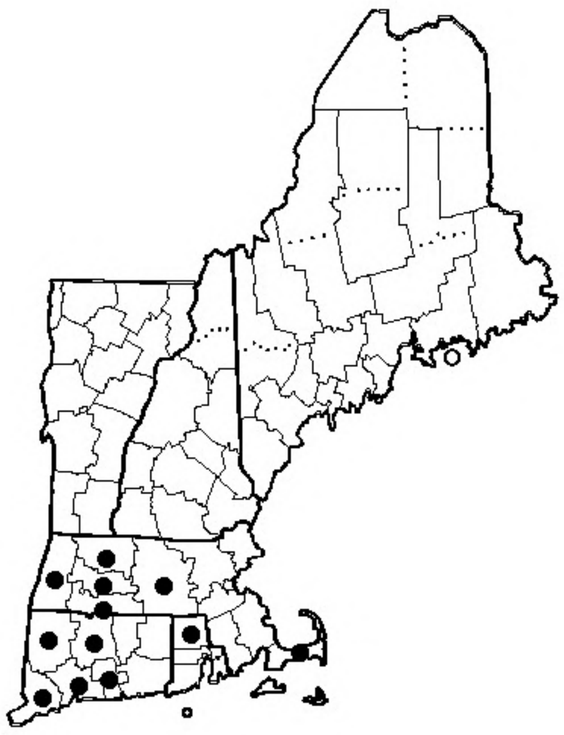


Vaccinium oxycoccus

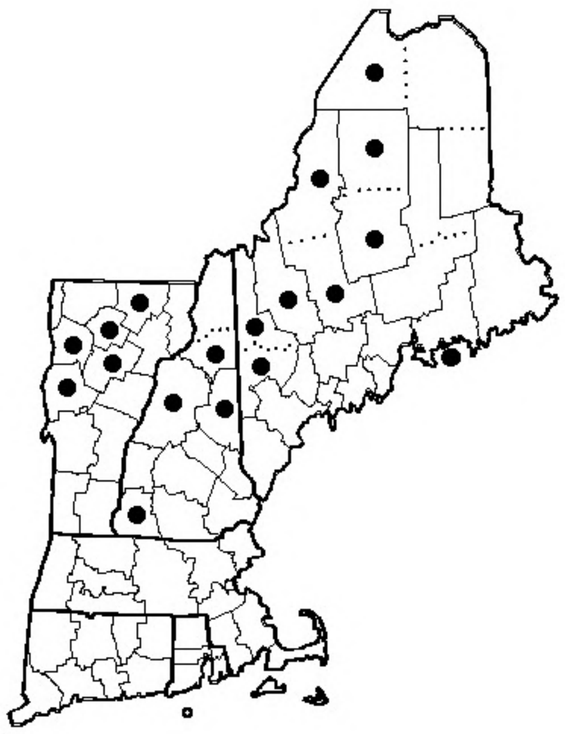


Vaccinium pallidum

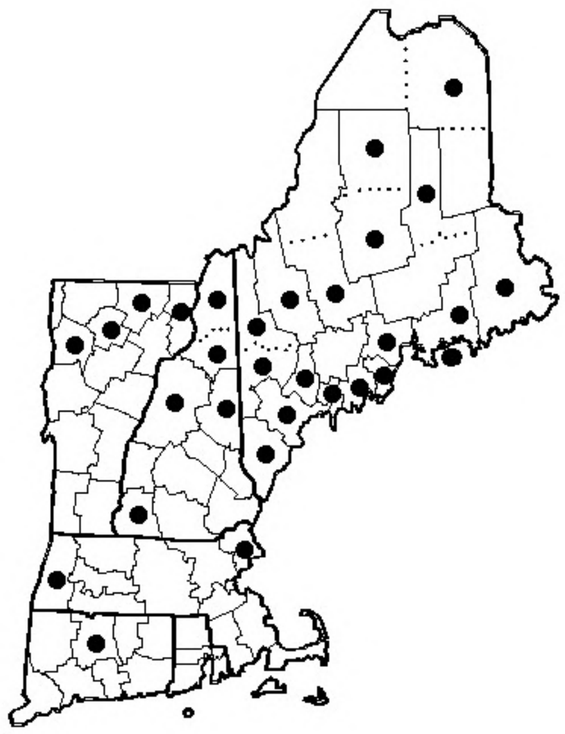
Figure 10. Distribution maps.



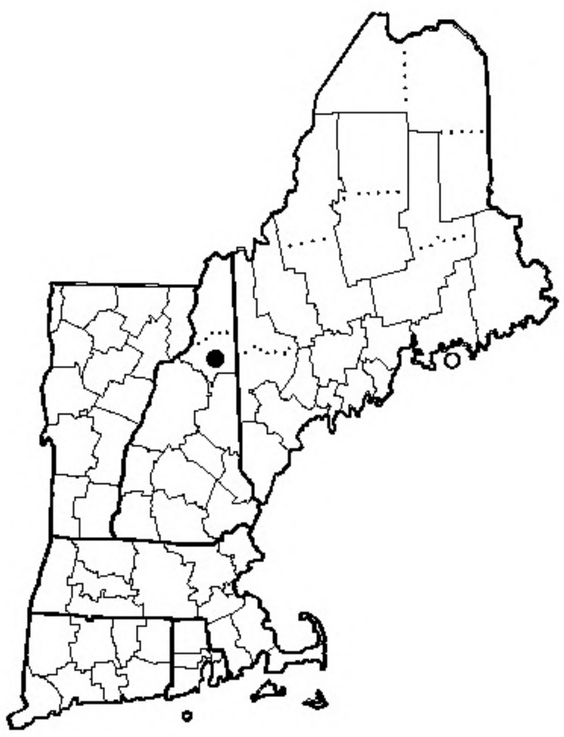
Vaccinium stamineum



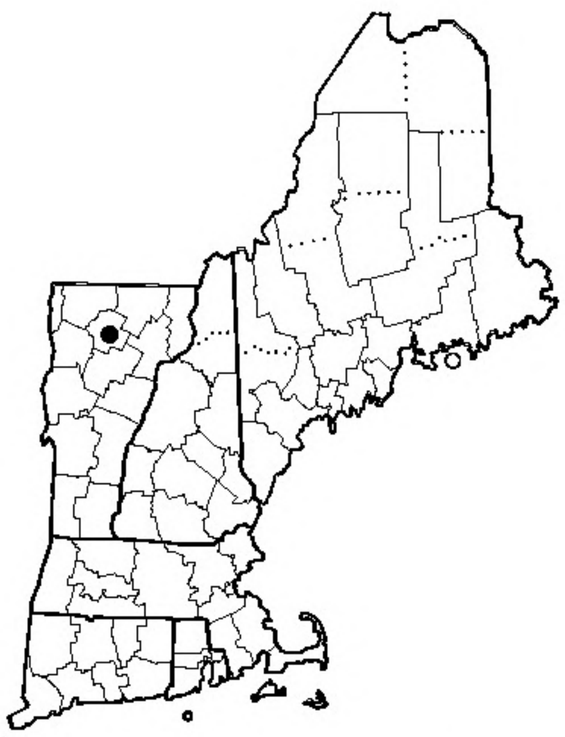
Vaccinium uliginosum



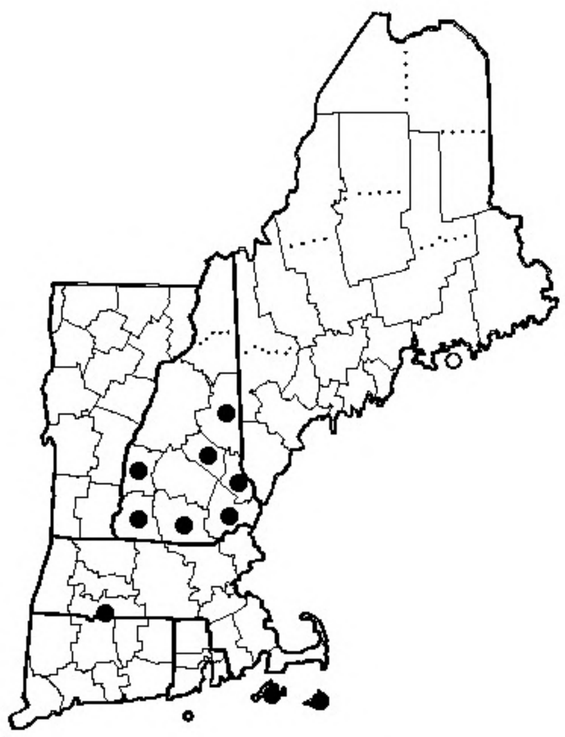
Vaccinium vitis-idaea



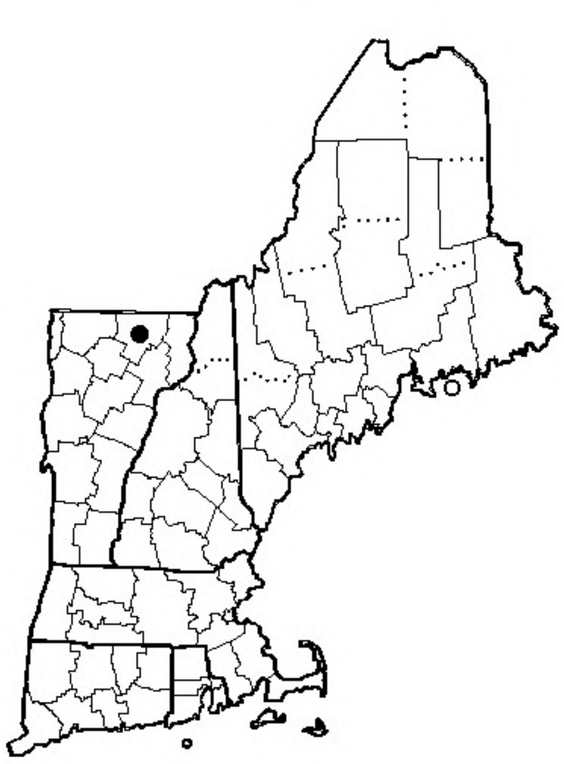
Vaccinium angustifolium
X *V. myrtilloides*



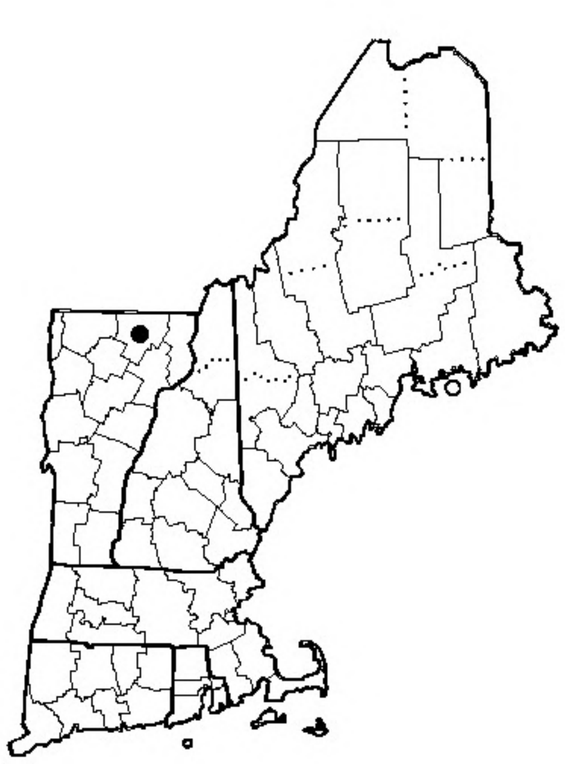
Vaccinium angustifolium
X *V. uliginosum*



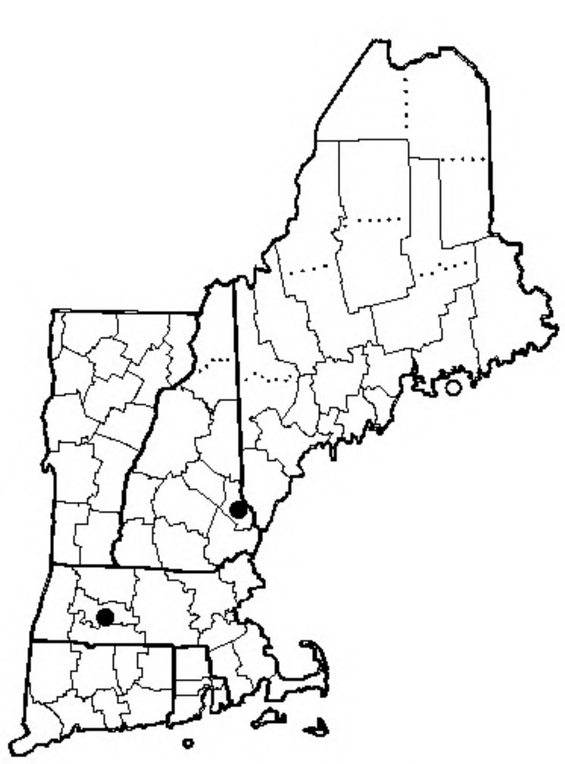
Vaccinium X *atlanticum*



Vaccinium boreale
X *V. myrtilloides*

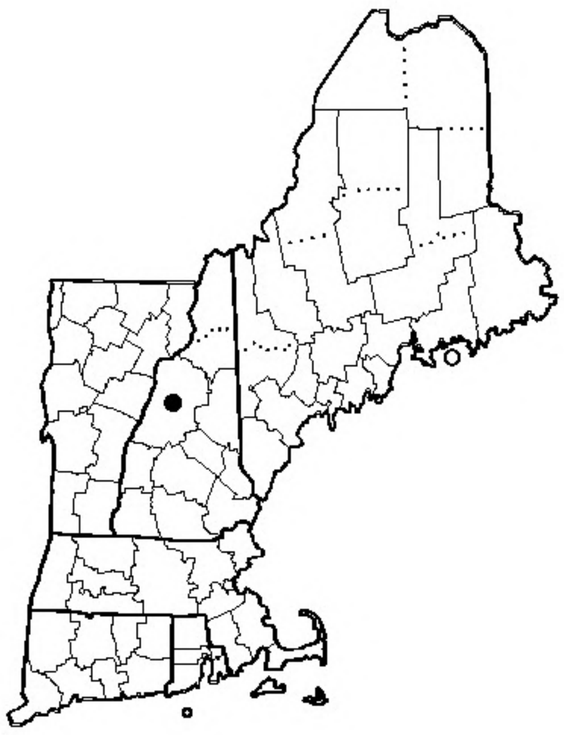


Vaccinium caespitosum
X *V. myrtilloides*

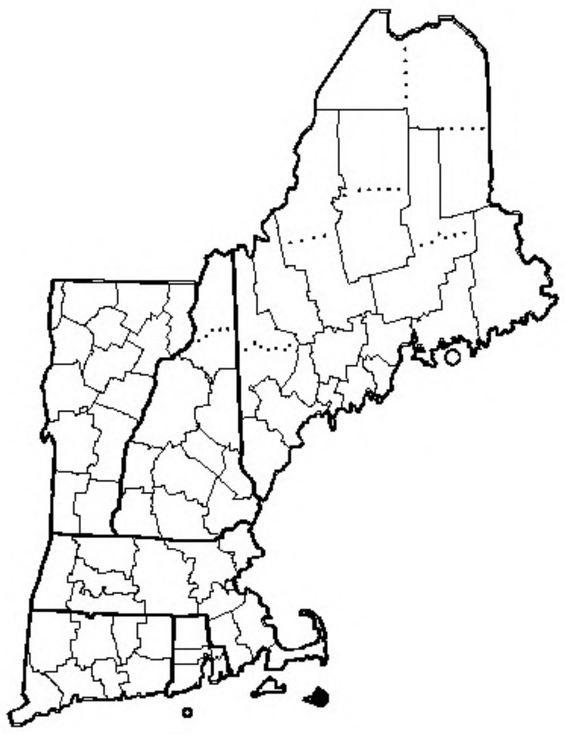


Vaccinium corymbosum
X *V. fuscatum*

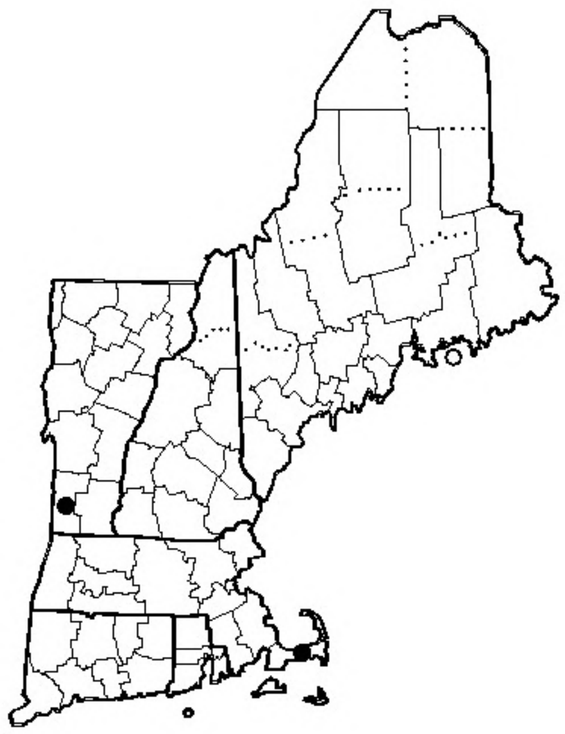
Figure 11. Distribution maps.



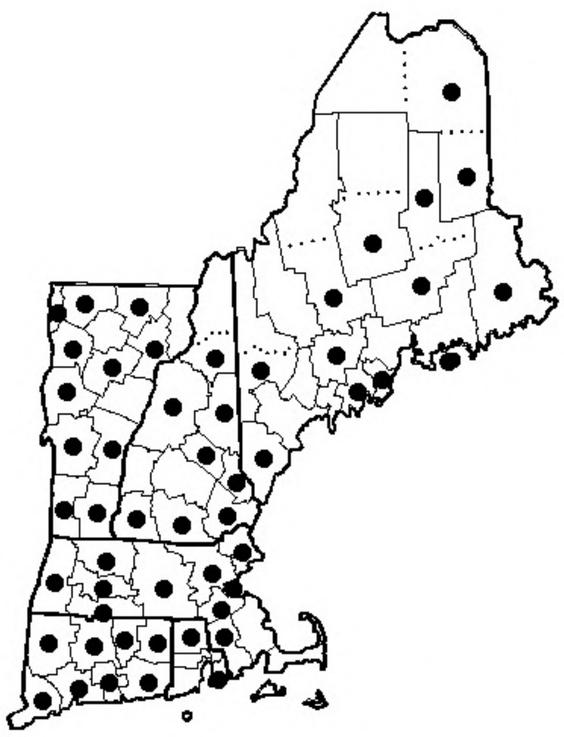
Vaccinium corymbosum
X *V. myrtilloides*



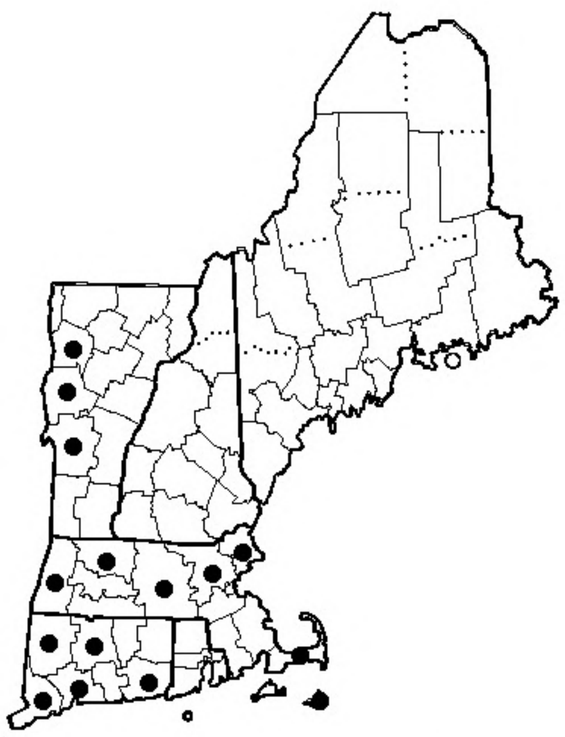
Vaccinium corymbosum
X *V. pallidum*



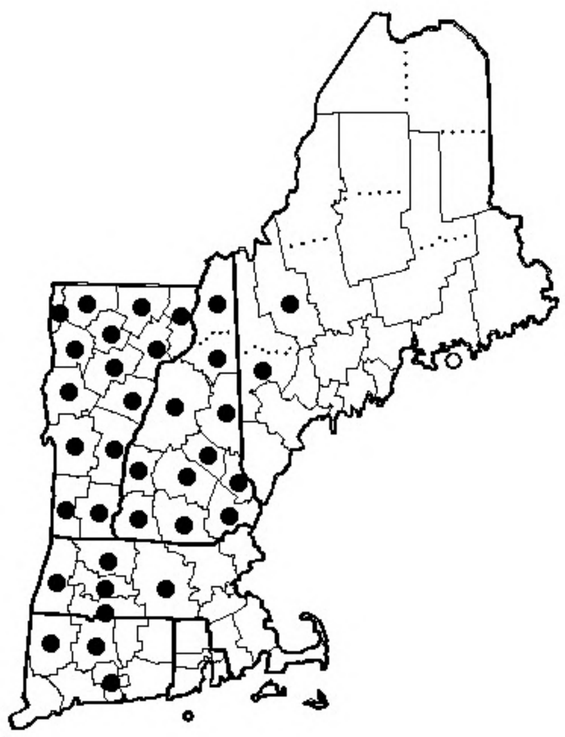
Vaccinium fuscatum
X *V. pallidum*



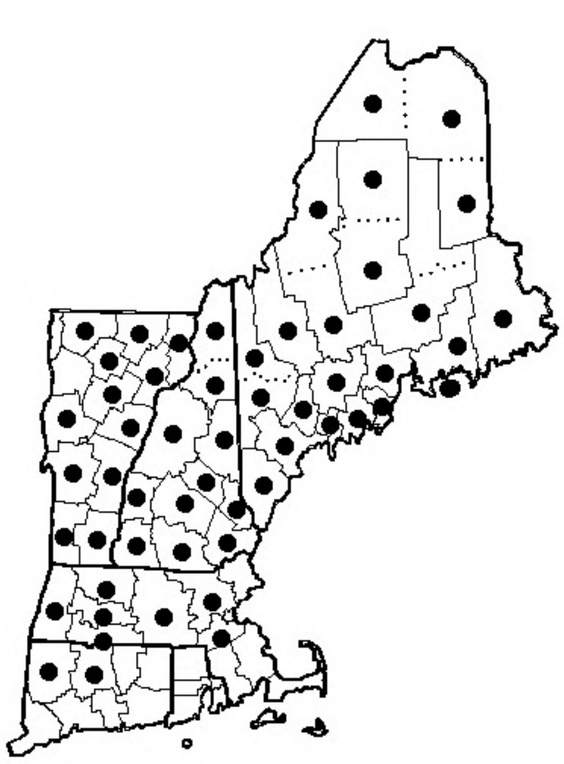
Ribes americanum



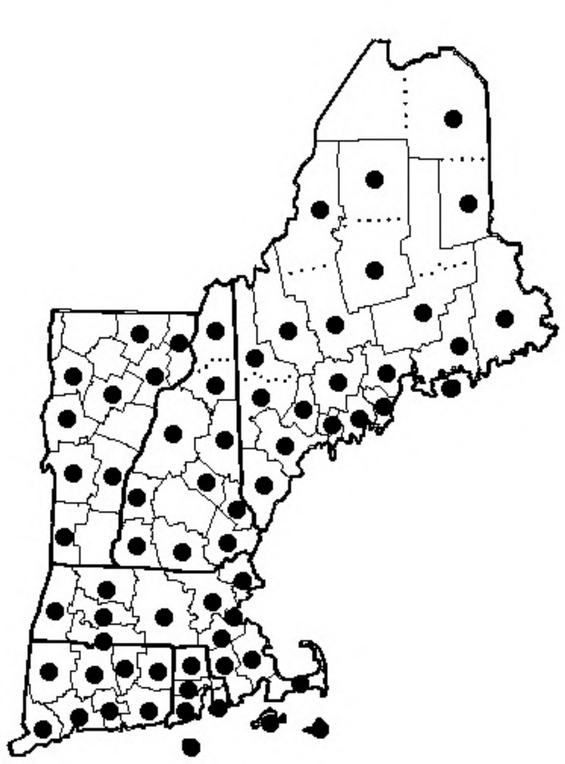
RIBES AUREUM
var. *VILLOSUM*



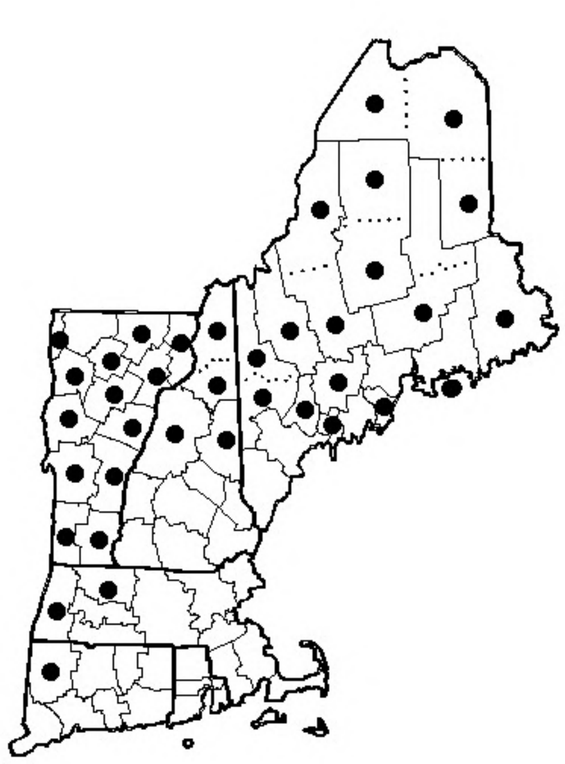
Ribes cynosbati



Ribes glandulosum

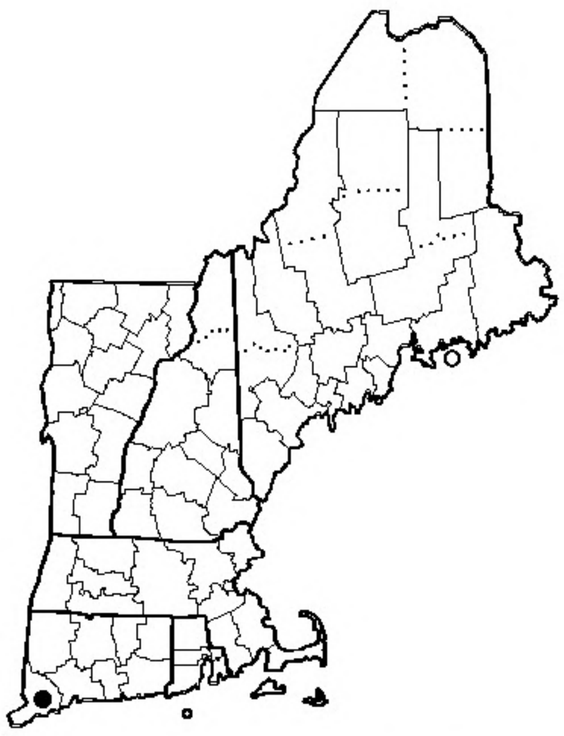


Ribes hirtellum

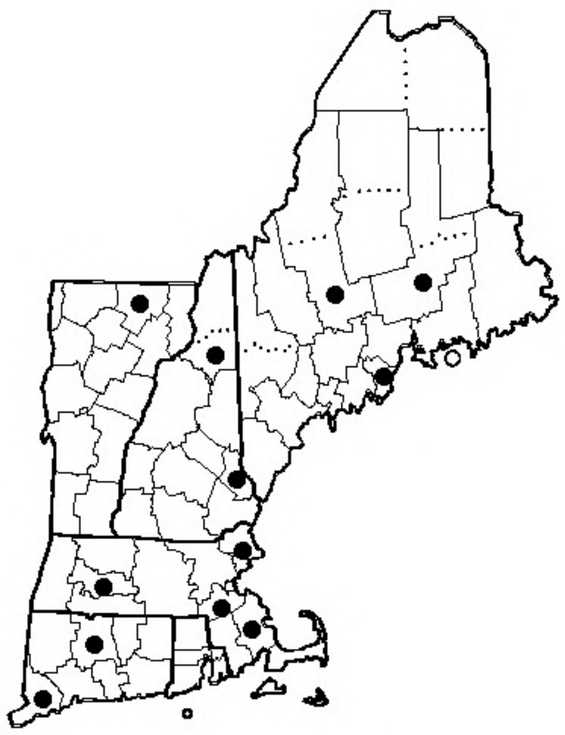


Ribes lacustre

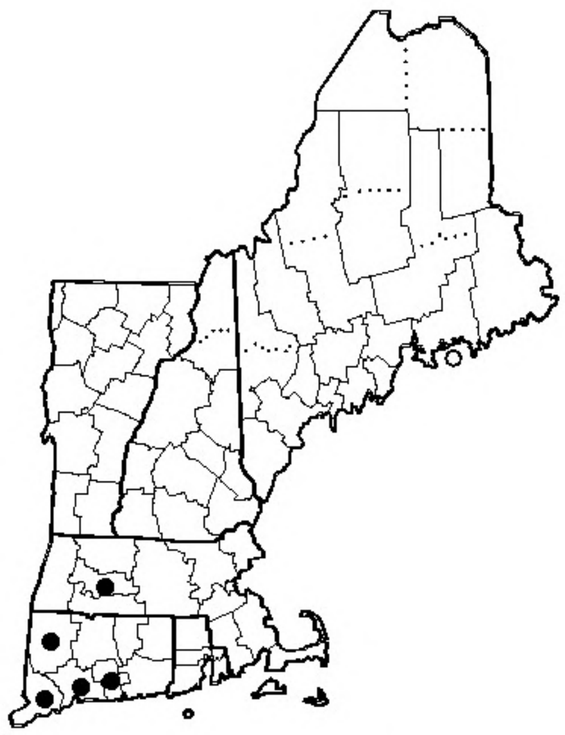
Figure 12. Distribution maps.



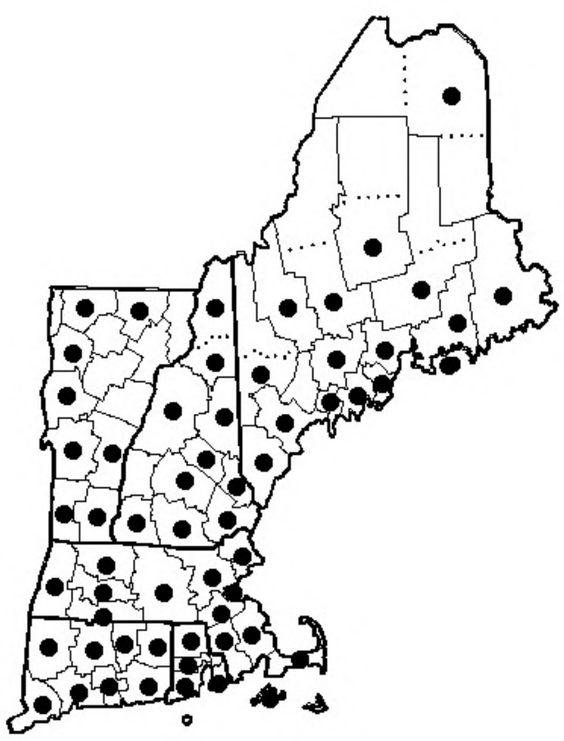
RIBES MISSOURIENSE



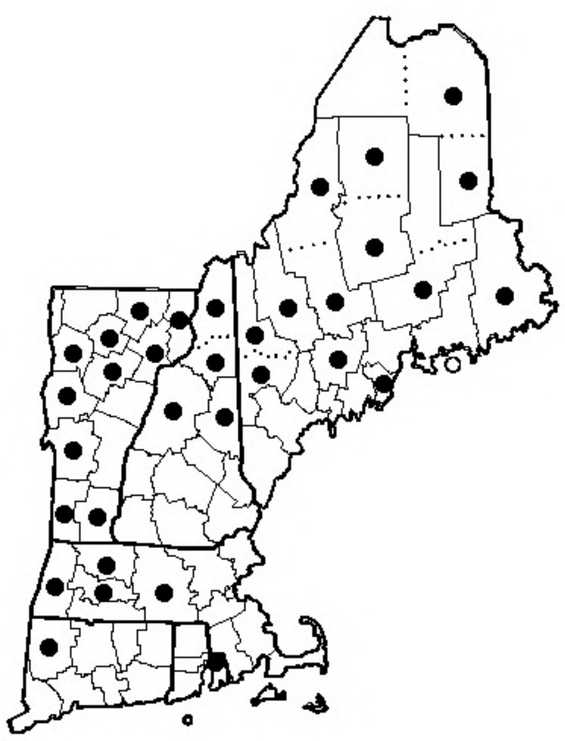
RIBES NIGRUM



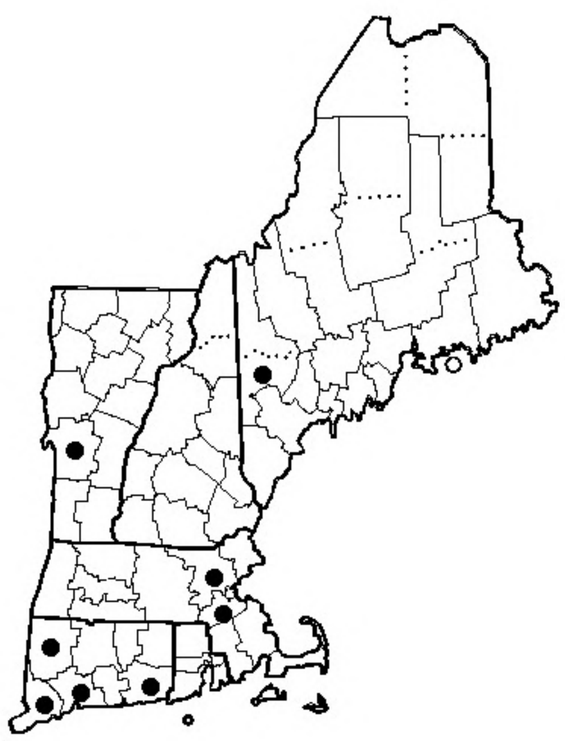
Ribes rotundifolium



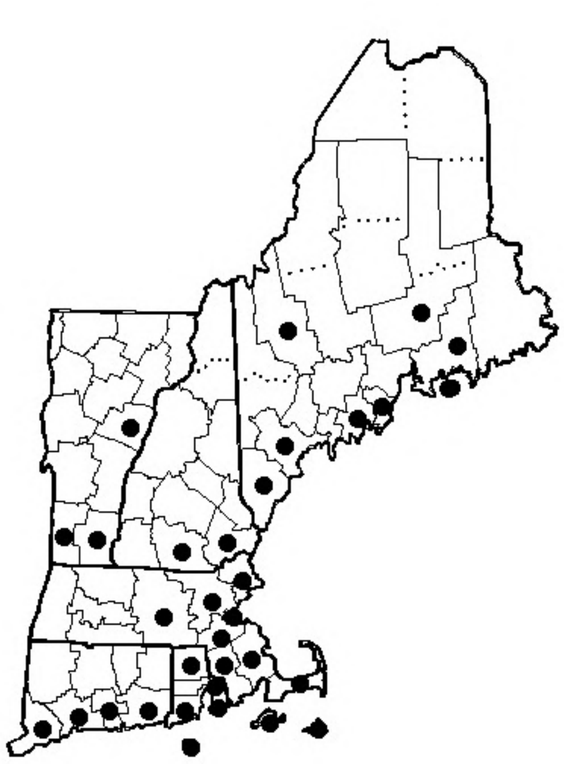
RIBES RUBRUM



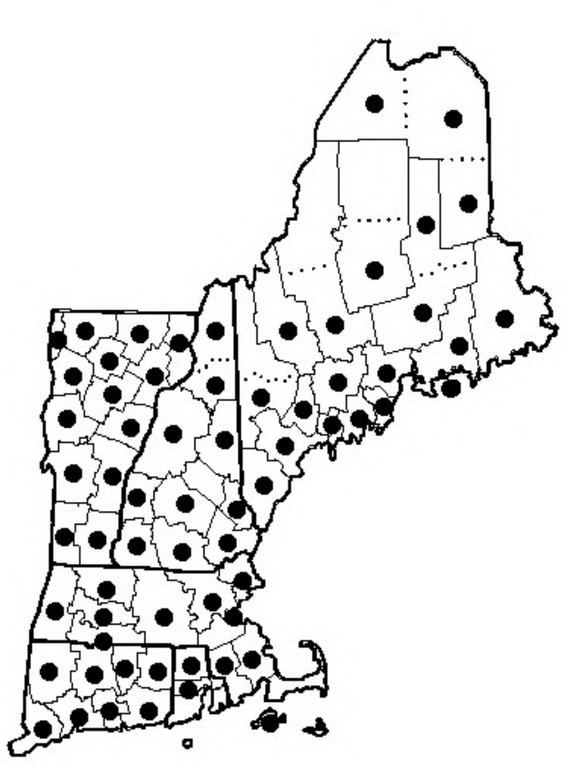
Ribes triste



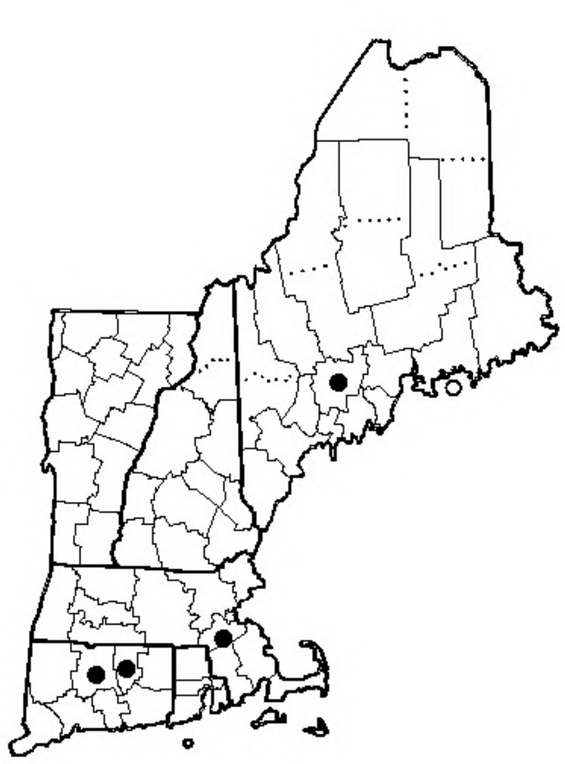
RIBES UVA-CRISPA



ANAGALLIS ARVENSIS

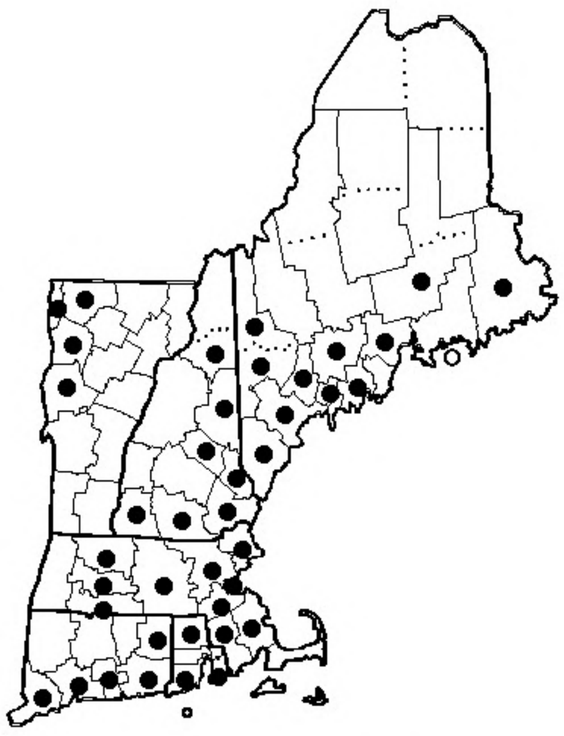


Lysimachia ciliata

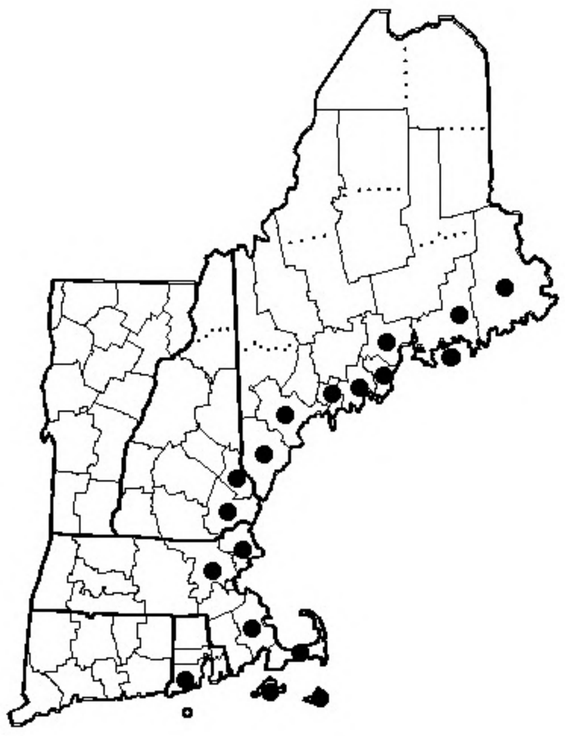


LYSIMACHIA CLETHROIDES

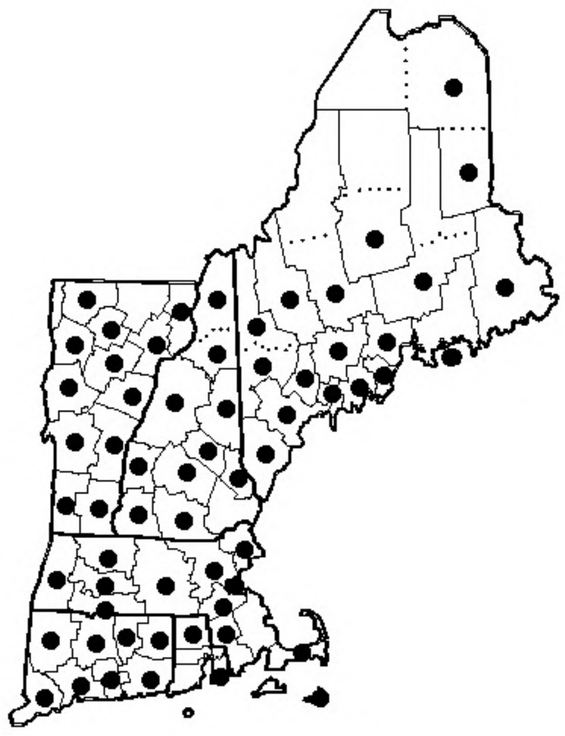
Figure 13. Distribution maps.



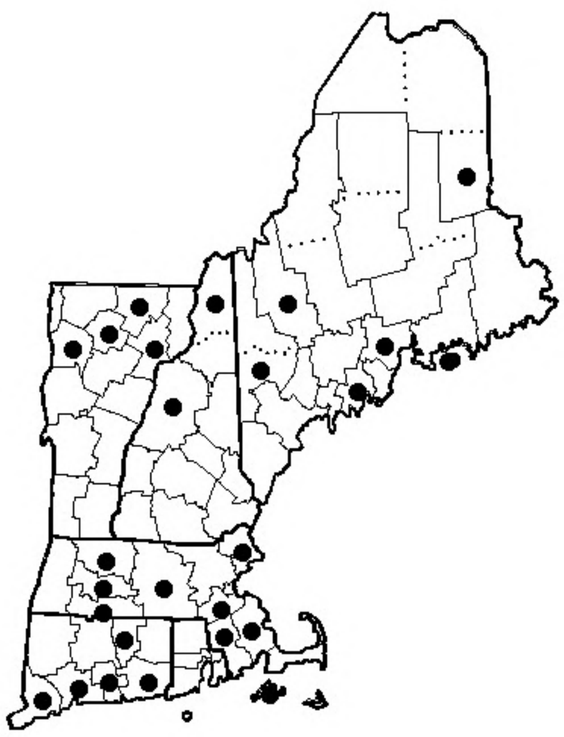
Lysimachia hybrida



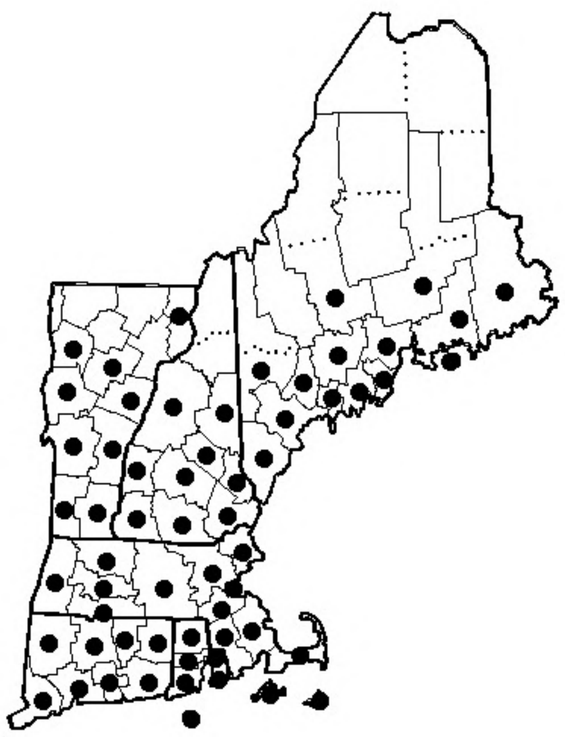
Lysimachia maritima



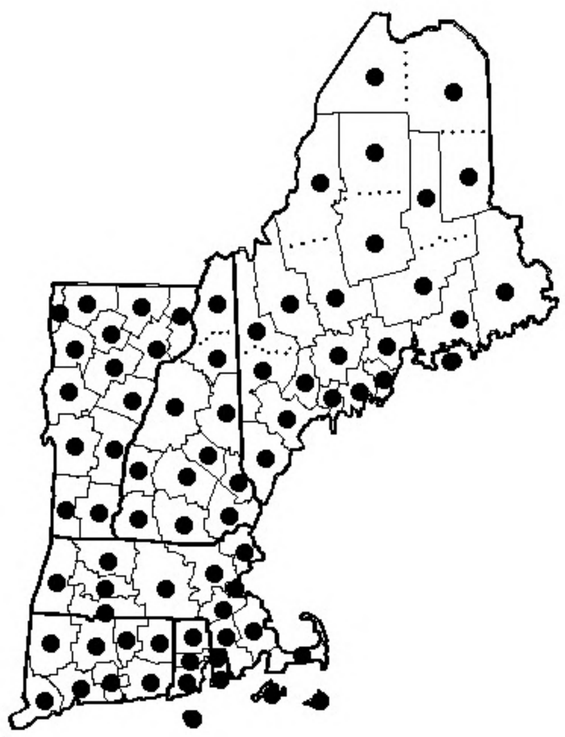
LYSIMACHIA NUMMULARIA



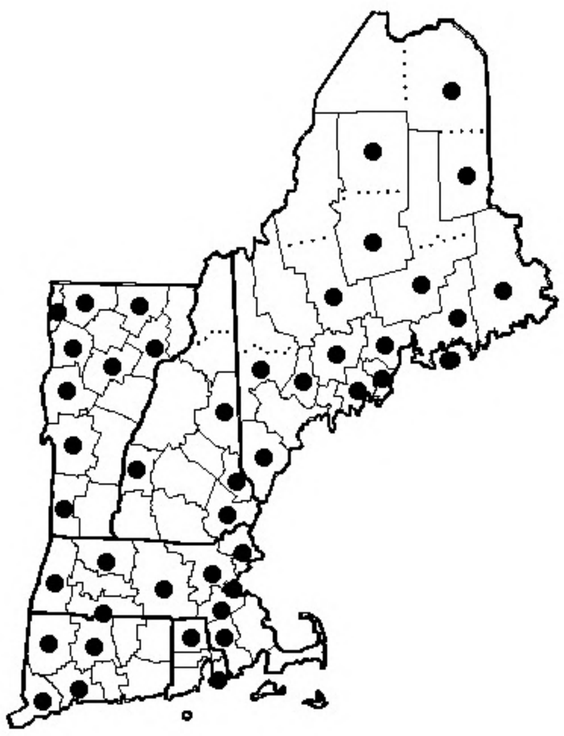
LYSIMACHIA PUNCTATA



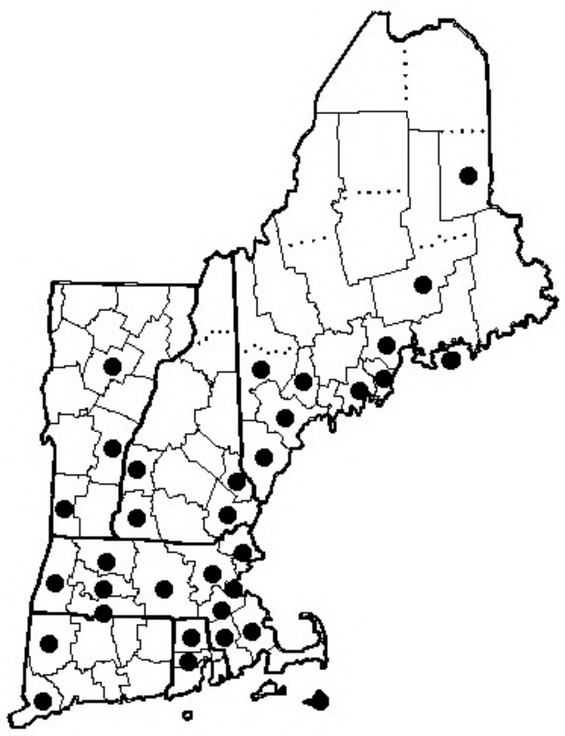
Lysimachia quadrifolia



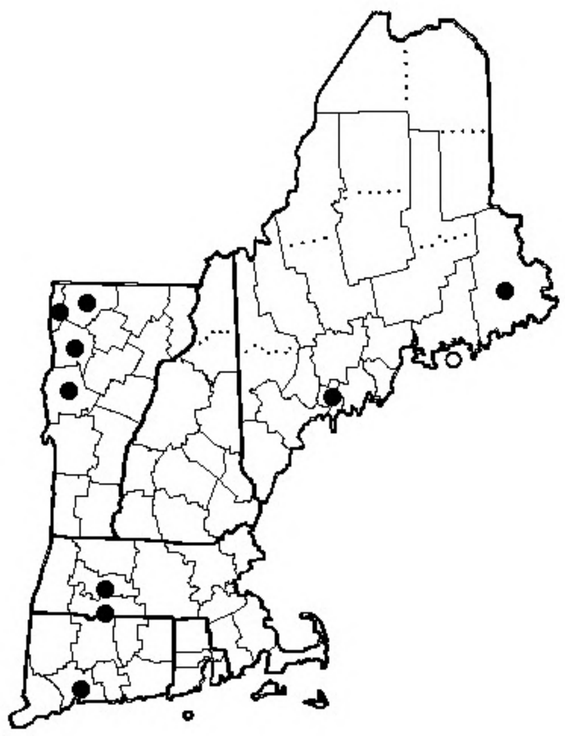
Lysimachia terrestris



Lysimachia thyrsiflora

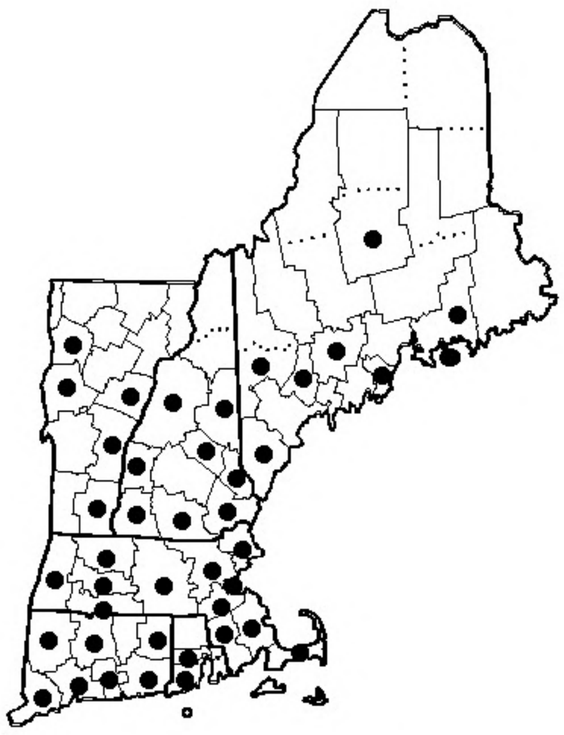


LYSIMACHIA VULGARIS

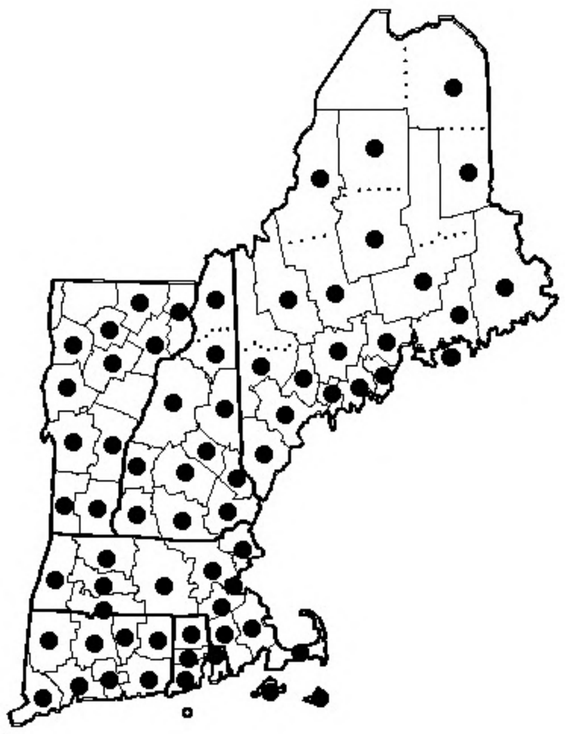


Lysimachia X commixta

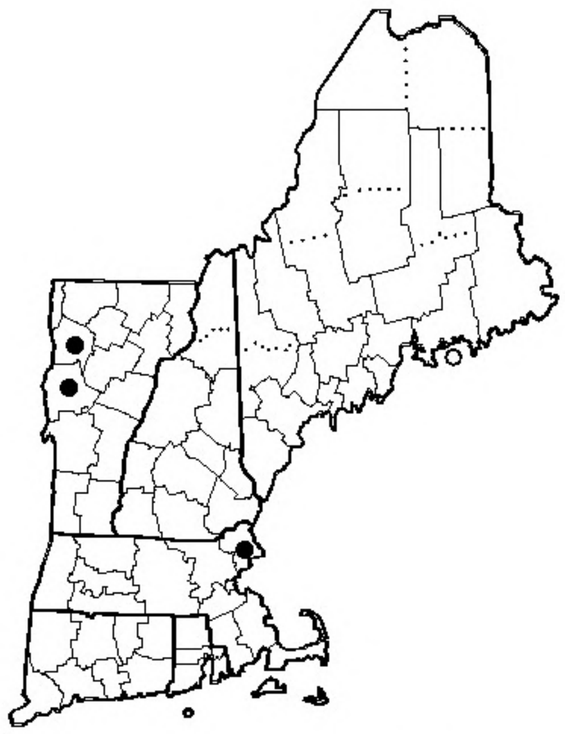
Figure 14. Distribution maps.



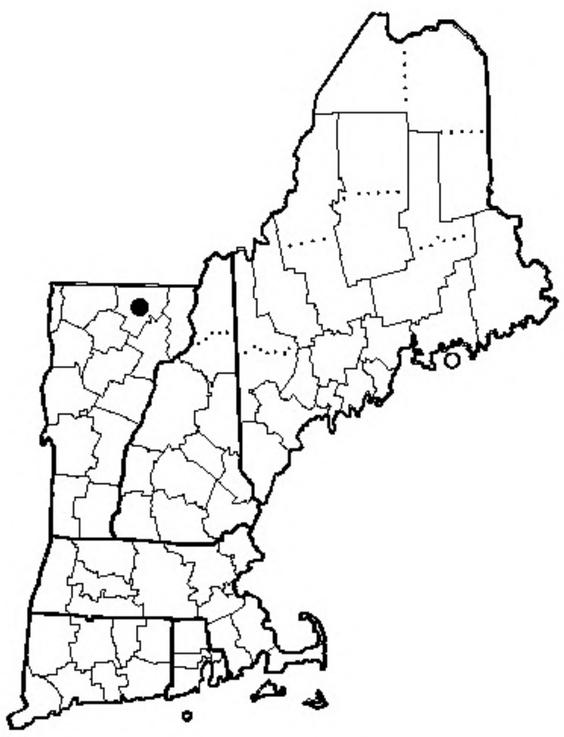
Lysimachia X producta



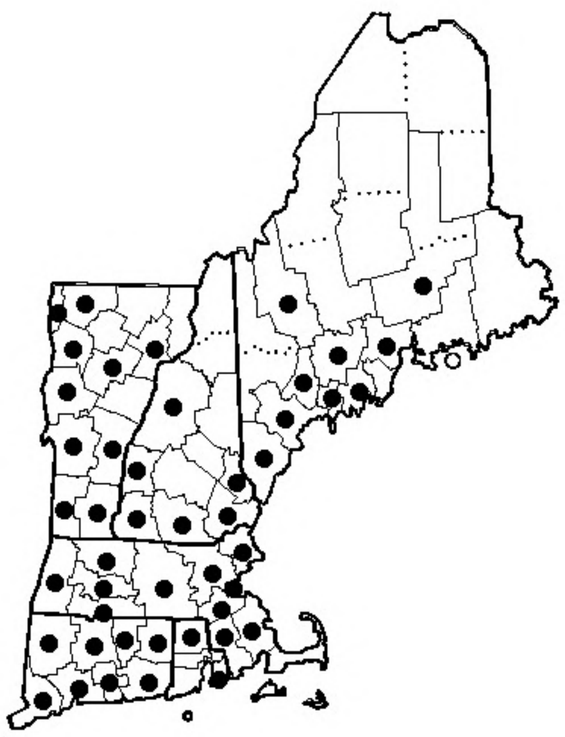
Trientalis borealis



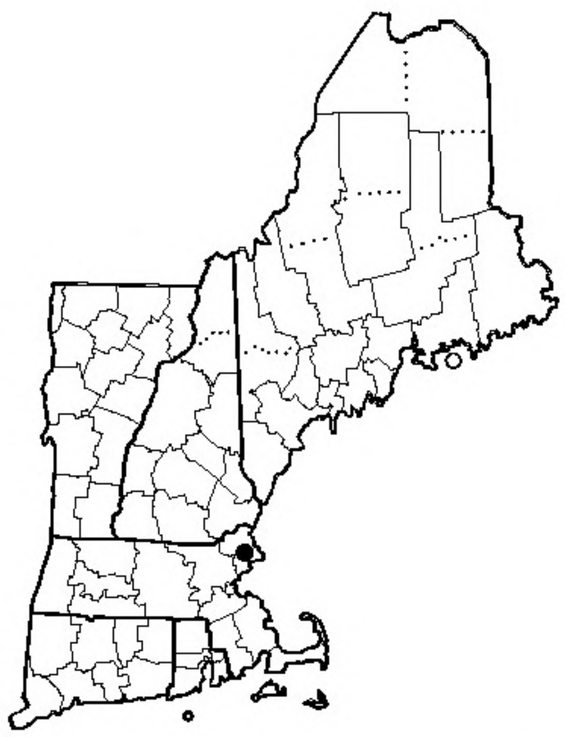
PAEONIA LACTIFLORA



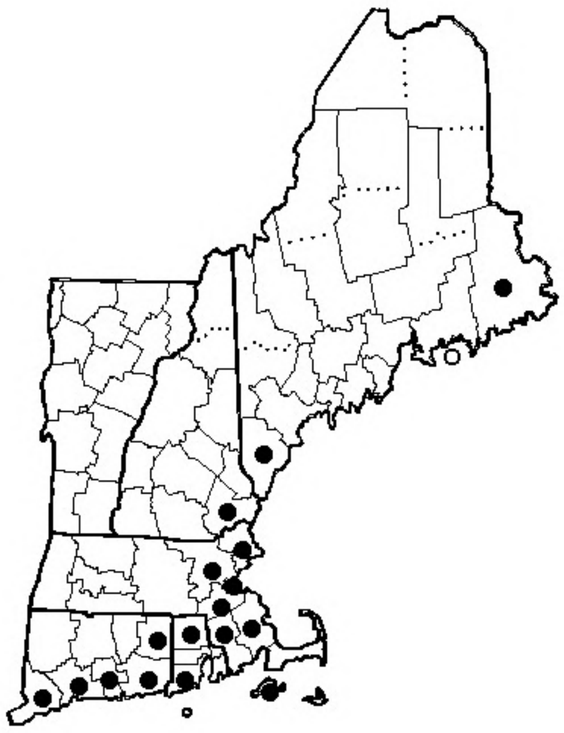
PAEONIA OFFICINALIS



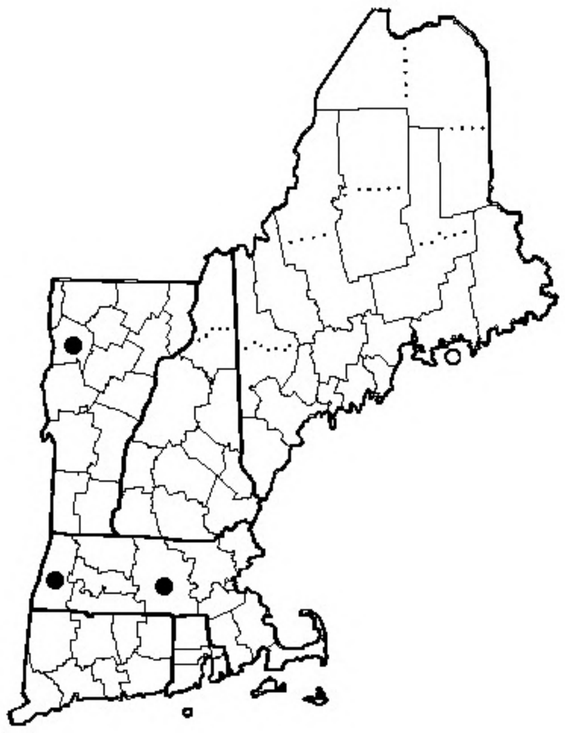
Penthorum sedoides



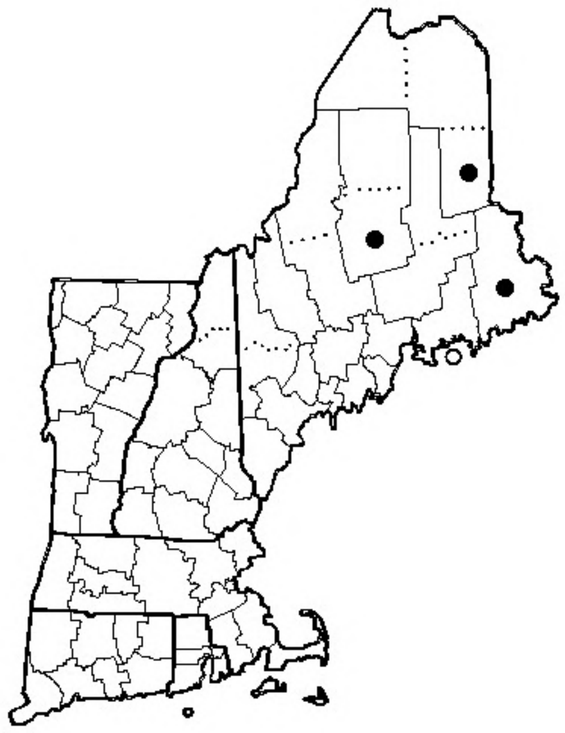
ANDROSACE OCCIDENTALIS



Hottonia inflata

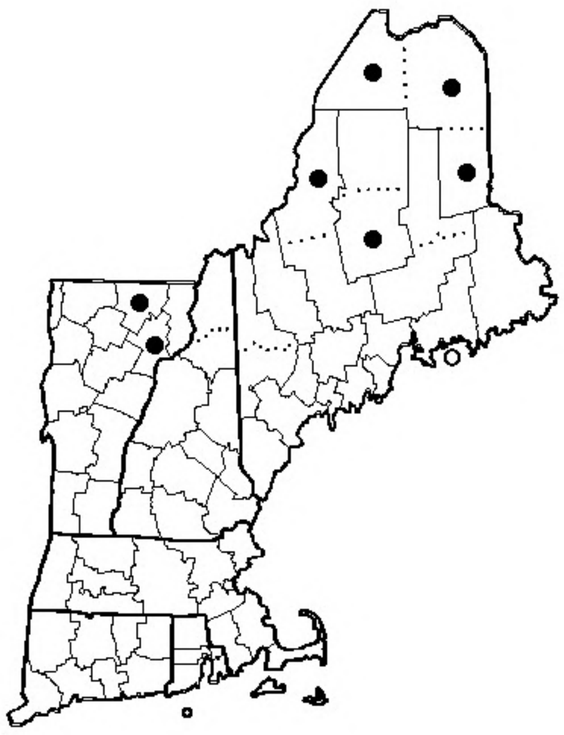


PRIMULA JAPONICA

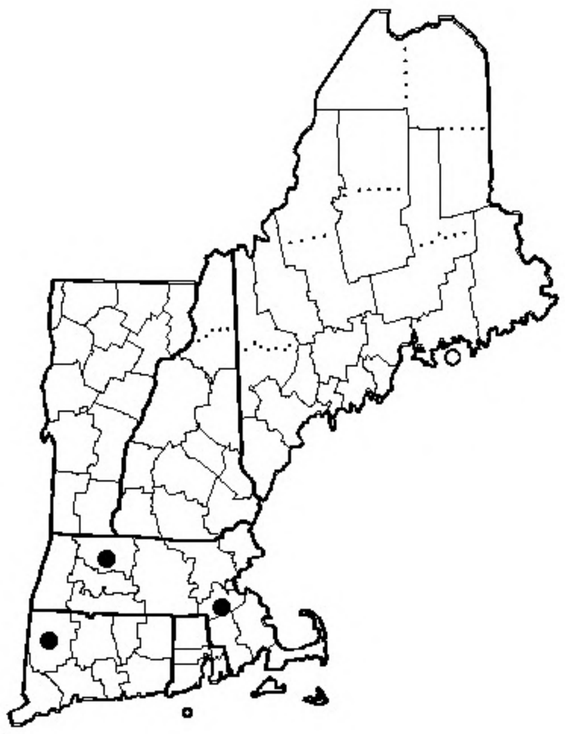


Primula laurentiana

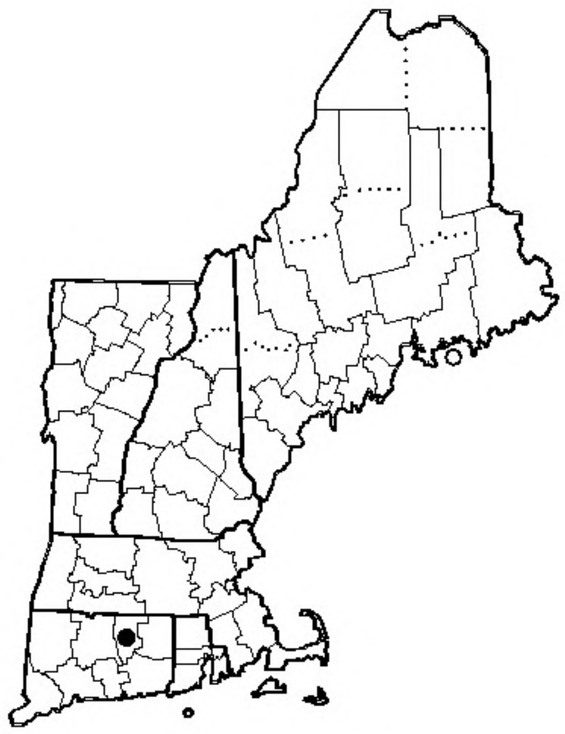
Figure 15. Distribution maps.



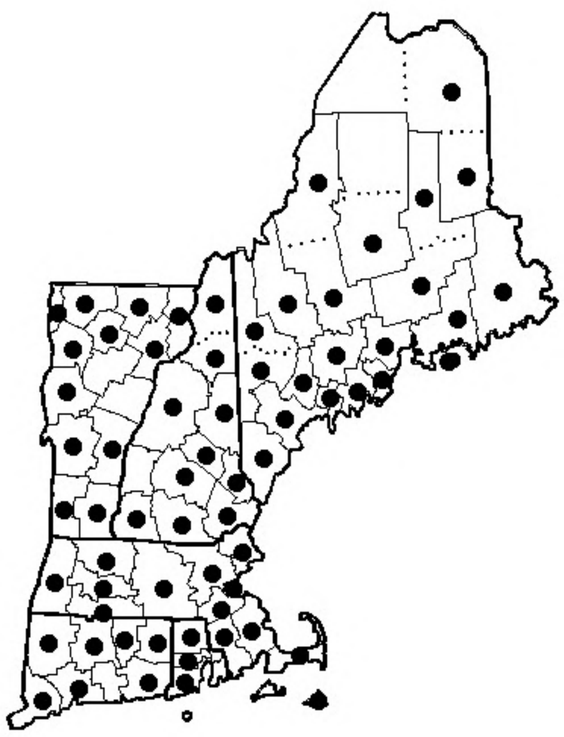
Primula mistassinica



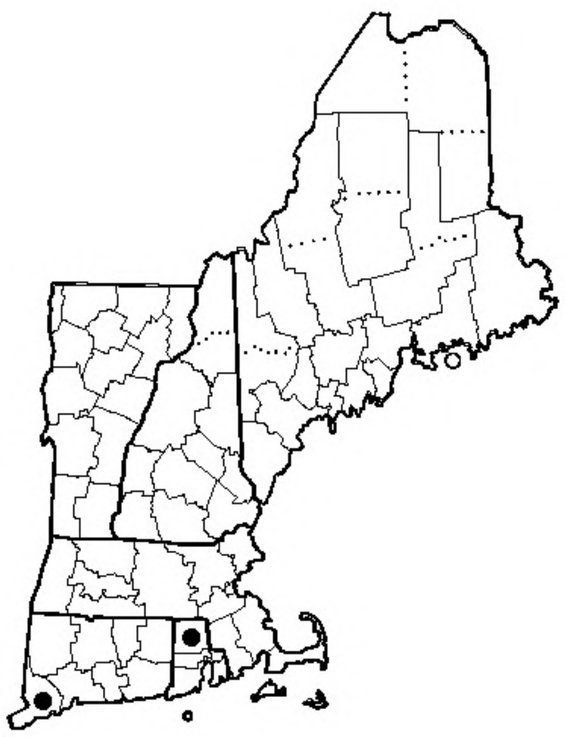
PRIMULA VERIS



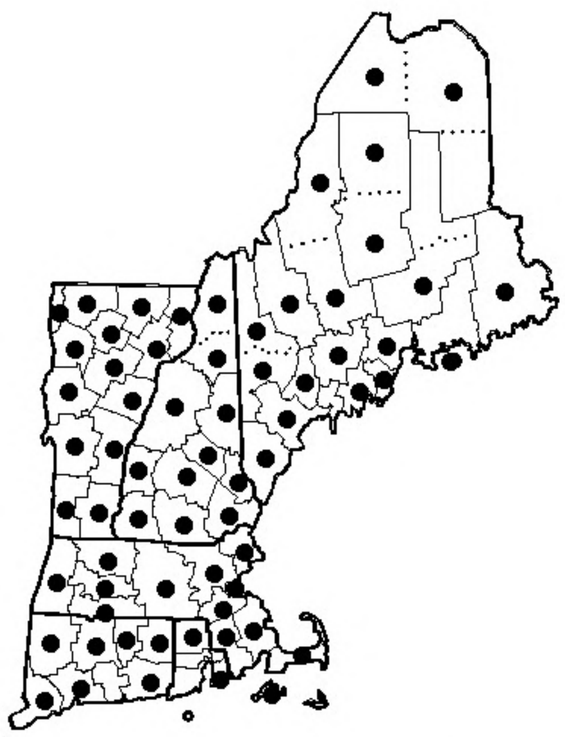
SARRACENIA FLAVA



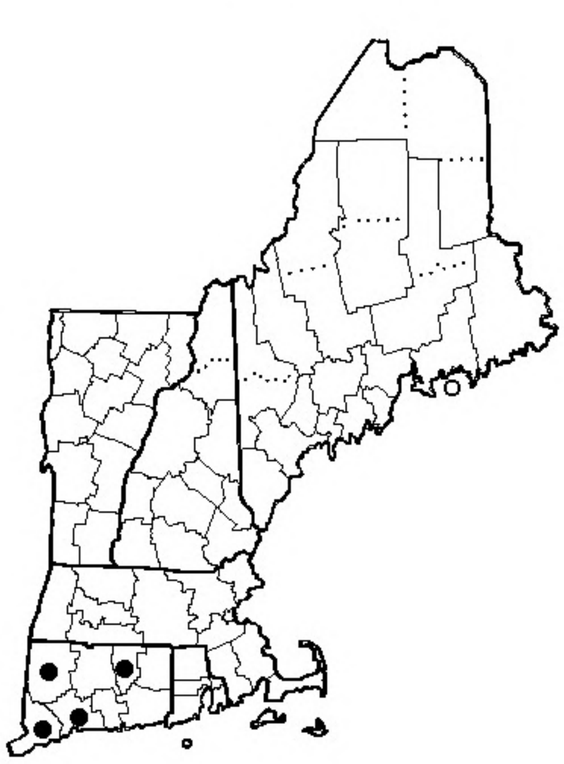
Sarracenia purpurea
subsp. *purpurea*



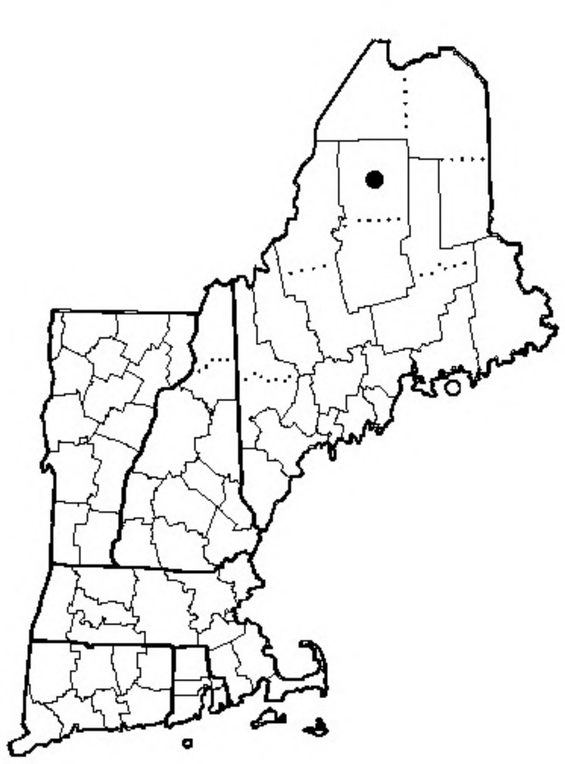
ASTILBE JAPONICA



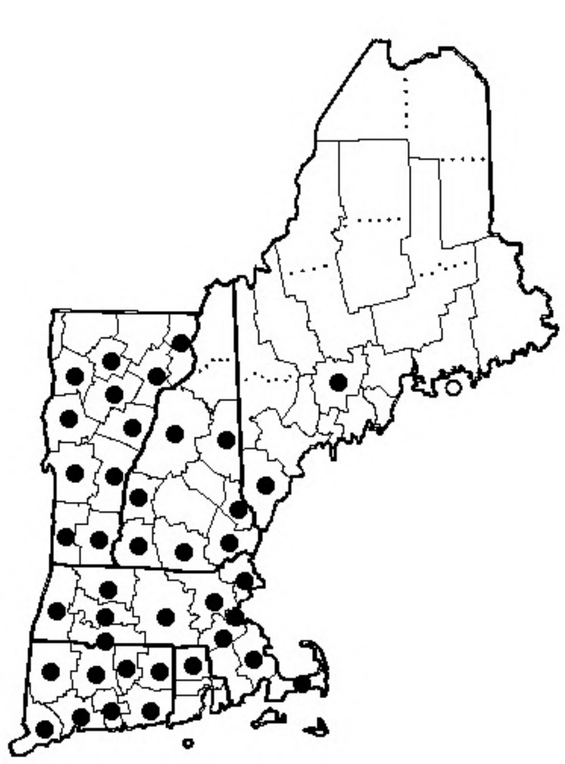
Chrysosplenium americanum



Heuchera americana
var. *americana*

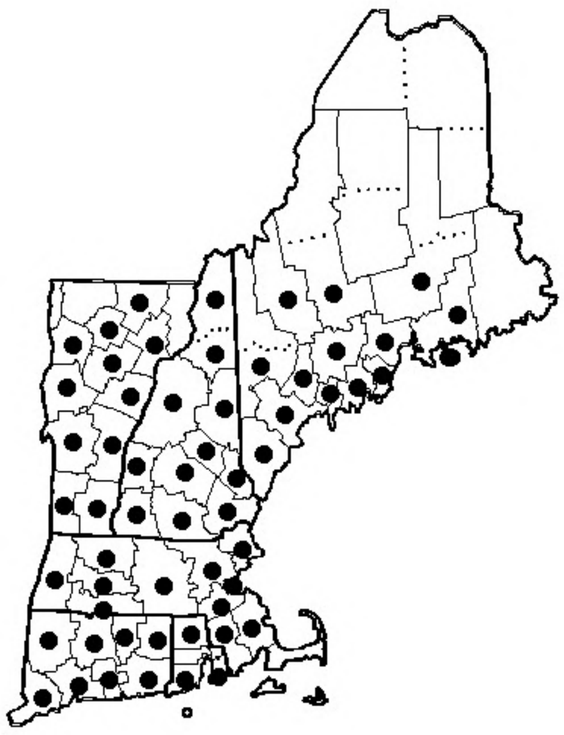


Micranthes foliolosa

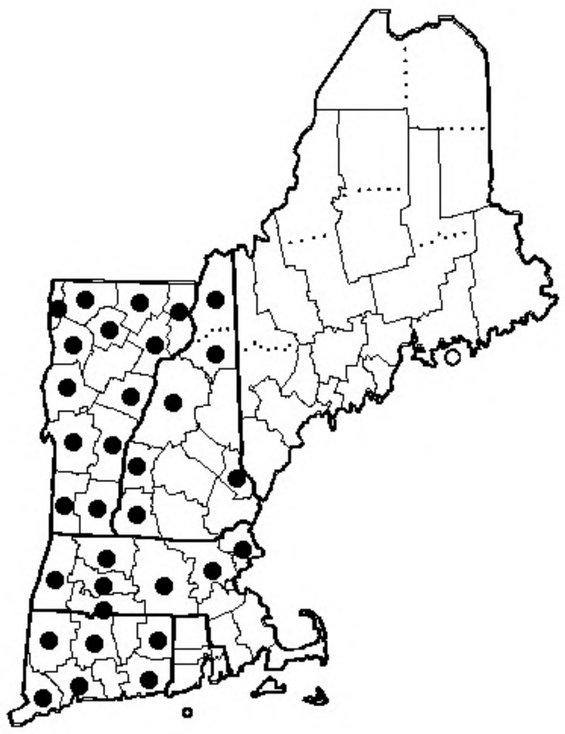


Micranthes pensylvanica

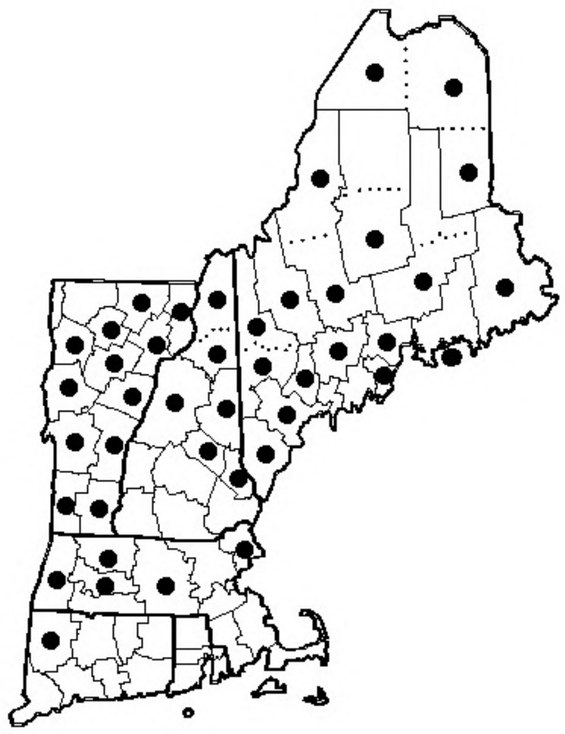
Figure 16. Distribution maps.



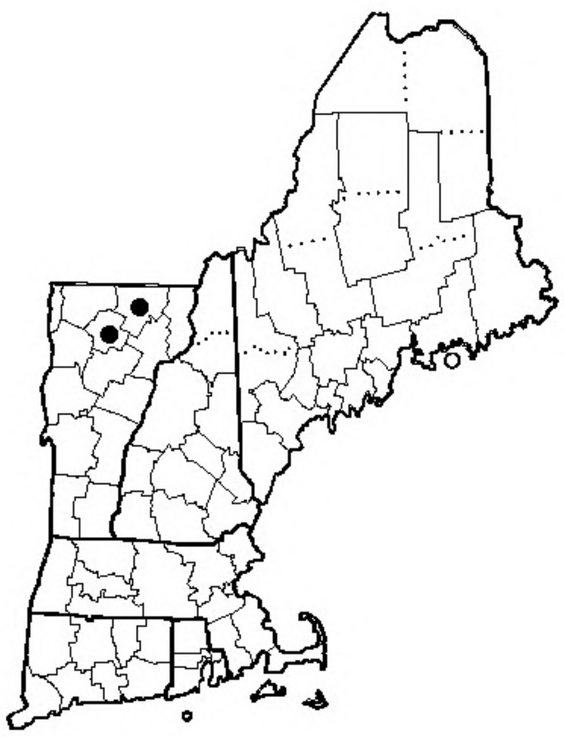
Micranthes virginiensis



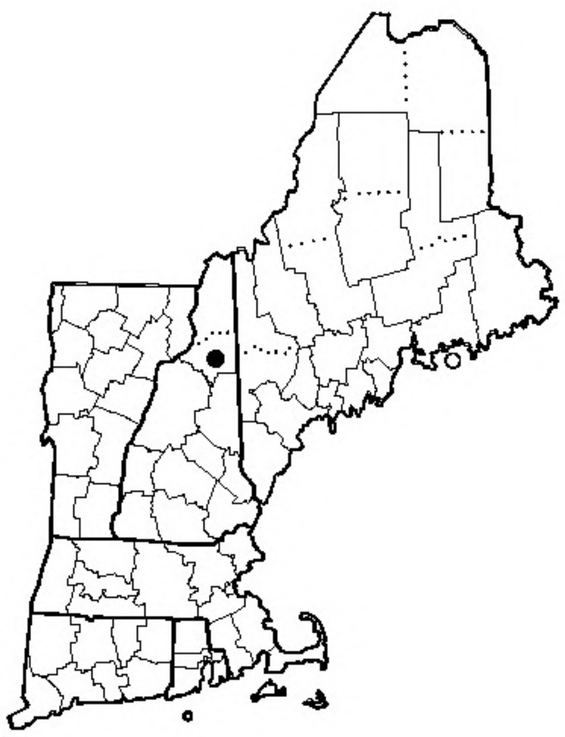
Mitella diphylla



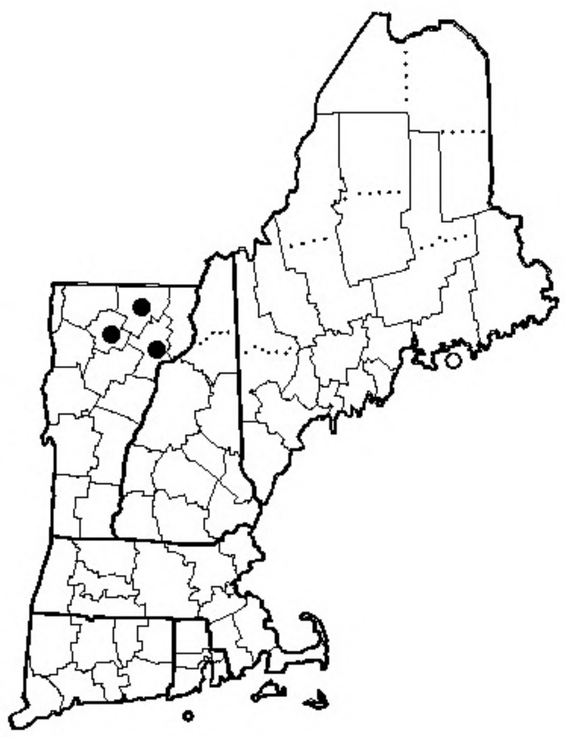
Mitella nuda



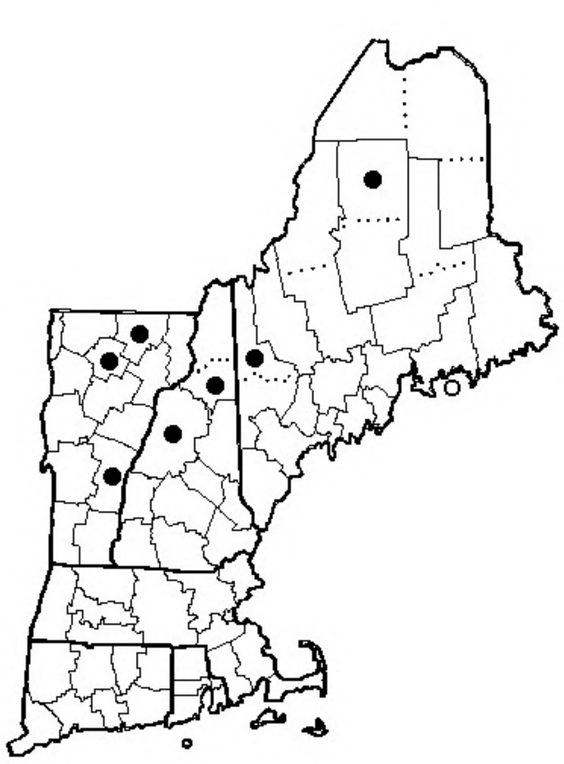
Saxifraga aizoides



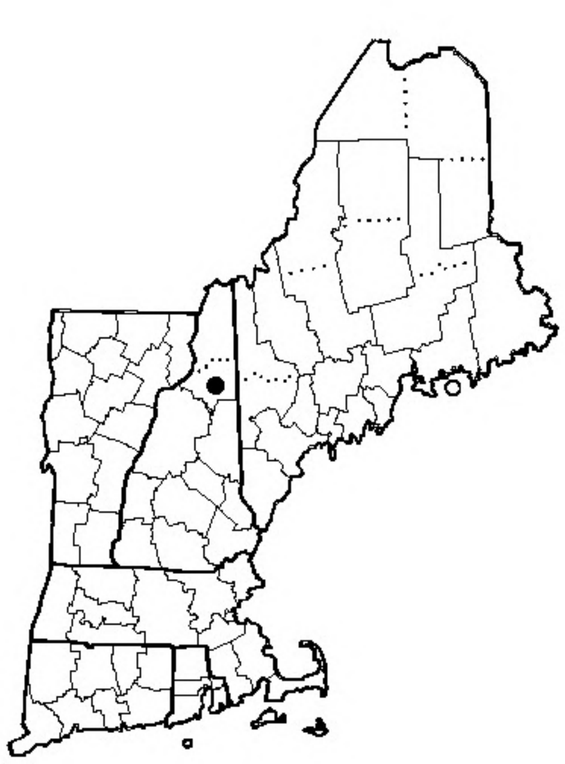
Saxifraga cernua



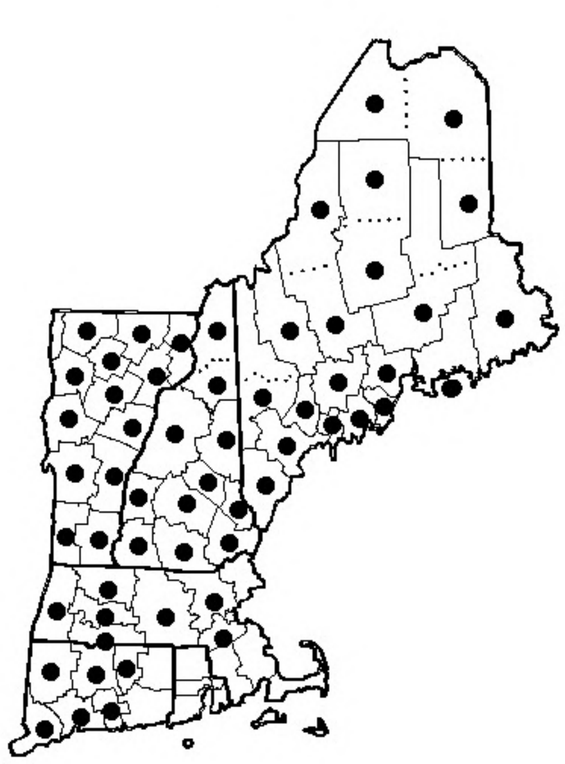
Saxifraga oppositifolia
subsp. *oppositifolia*



Saxifraga paniculata

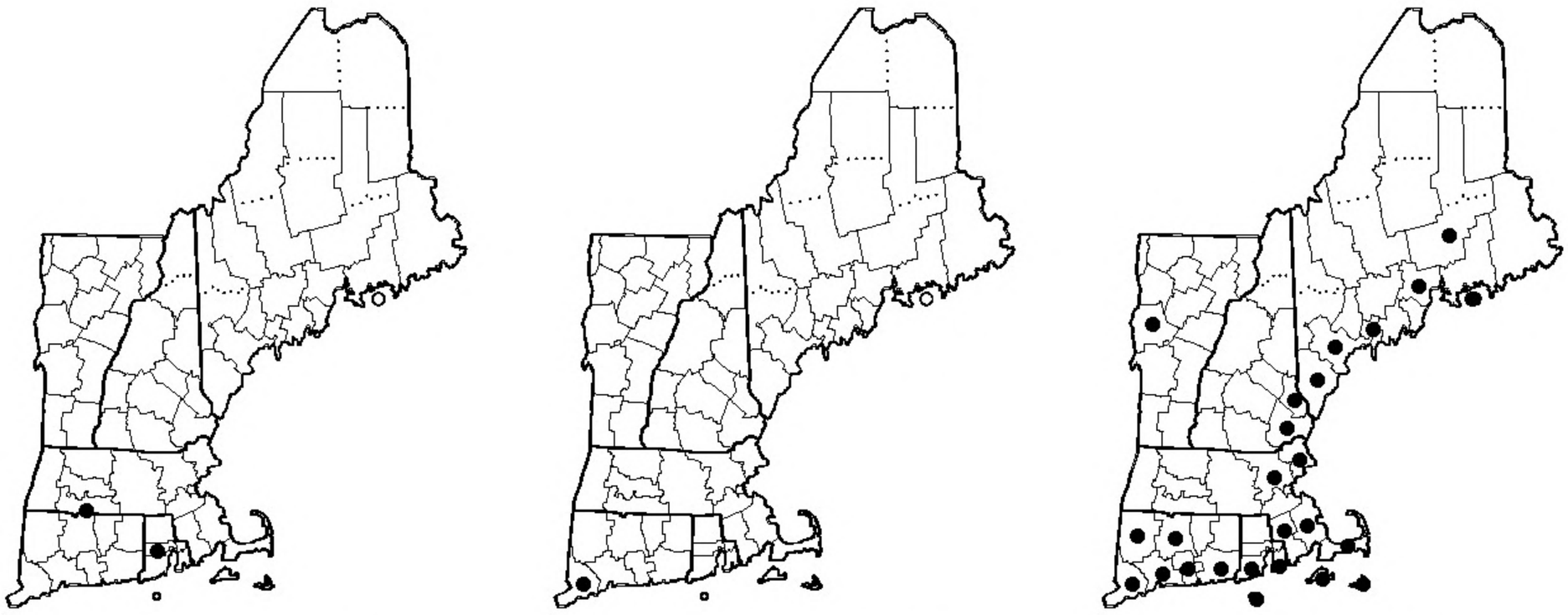


Saxifraga rivularis
subsp. *rivularis*



Tiarella cordifolia

Figure 17. Distribution maps.



HALESIA CAROLINA *SYMPLOCOS PANICULATA* *Samolus parviflorus*

Figure 18. Distribution maps.